Chronic idiopathic constipation

The function of the colon is to conserve water, split dietary fibre by the action of colonic bacteria and allow the expulsion of residue at a convenient time.

DAVID EPSTEIN, ***MB ChB, DCH (SA), FCP (SA), Cert Gastroenterology (SA)***

David Epstein is a gastroenterologist in private practice at Life Vincent Pallotti Hospital, Cape Town and a part-time lecturer in the Department of Medicine, University of Cape Town. His interests include inflammatory bowel disease, intestinal tuberculosis and gastroenterology-related database development.

Constipation is a common problem, with a prevalence of 2 - 27% in the USA.[1] It is important to recognise the association between culture and constipation. A study in KwaZulu-Natal found that more than 86% of children received non-prescription enemas for perceived constipation in the first 3 months of life.[2]

Constipation is defined as:

- difficult passage of stool
- infrequent passage of stool
- sensation of incomplete evacuation.

It is important to recognise the overlap between constipation and the functional gastrointestinal disorders or irritable bowel syndrome (IBS).

It is interesting to read 19th century medical views on constipation, and to realise how little ideas have changed over the past 100 years.

Chronic idiopathic constipation usually occurs in young women; however, the elderly may be affected as well. Other associations include lower socio-economic status, black ethnicity, a history of sexual abuse, depression or institutionalisation.

It is interesting to read 19th century medical views on constipation, and to realise how little ideas have changed over the past 100 years. It was believed that evacuation at least once daily was required for good health and that infrequent passage of stool would lead to 'autointoxication'. It was recognised that constipation was common in women, which was thought to be due to 'feebleness of abdominal muscles', 'sedentary lifestyle' and 'carelessness in attending to the call to stool'. Another popular concept in the early 20th century was that our upright posture, and therefore gravity, causes elongation and kinking of the colon, resulting in constipation. Recommended treatment was surgical shortening of the 'redundant colon'. Lifestyle changes such as increased fluid and dietary fibre intake, as well as exercise, have been advocated for the treatment of constipation for over 100 years.

In a fascinating article published in the *American Journal of Gastroenterology* in 2005 a number of these ideas about constipation are debunked.[3] There is now a substantial body of scientific evidence proving that our ideas about constipation are largely based on myths and misconceptions.

For example, one study performed in volunteers showed that 2 weeks of fluid restriction of 500 ml a day followed by 2 weeks of

Constipation is a common problem, with a prevalence of 2 - 27% in the USA.

increased fluid intake of 2 500 ml per day had no significant effect on the frequency or consistency of the stools. Another example is the autointoxication theory. No toxin associated with constipation has ever been identified in the blood. Another misconception is the redundant colon. No studies have shown a relationship between colon length and constipation. Moderate exercise in young people has also not been shown to affect constipation, although in the elderly there is some benefit.

Clinical evaluation of the patient with constipation

Important clinical points when evaluating a patient with chronic idiopathic constipation include the following:

- Duration of constipation. Did it start in early childhood?
- Description, frequency and consistency of stool. Difficult or painful passage of stool. Is digitation or manual removal of stool required? Is there a feeling of incomplete evacuation?
- Is there a history of previous abdominal, pelvic or anal surgery?
- Examination of the perineum at rest and when bearing down to see if bulging (a sign of an enterocoele) occurs.
- Rectal examination for the presence of fissures or abscesses.
- Rectal examination to establish if impaction or puborectalis muscle spasm is present.

Investigations

Investigation for secondary causes of constipation in young patients is often unrewarding. Tests for metabolic disorders such as hypothyroidism, electrolyte abnormalities (K^+, Mg^{++}, Ca^{++}) and diabetes are seldom abnormal. Plain abdominal radiographs are useful to confirm the presence of faecal loading in the colon and/or rectum (Fig. 1).

There is now a substantial body of scientific evidence proving that our ideas about constipation are largely based on myths and misconceptions.

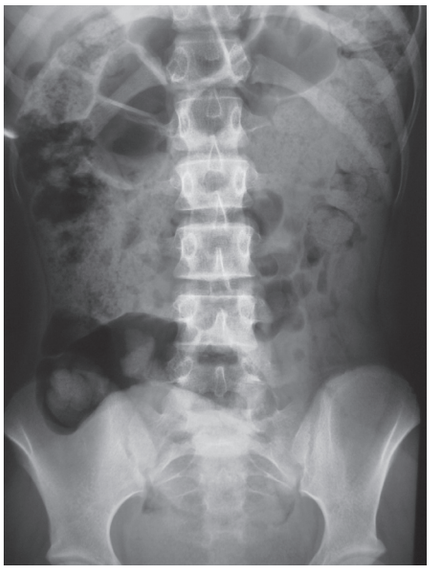

Fig. 1. Abdominal radiograph of a young woman with chronic constipation, demonstrating severe faecal loading of the colon.

Sigmoidoscopy is a useful, relatively non-invasive test to exclude local causes for idiopathic constipation. Full colonoscopy is often not required in these patients and, when performed, often provides reassurance rather than identifying an obstructing lesion.

Referral to a gastroenterologist often follows a normal work-up (as described above), failure to respond to lifestyle changes and a laxative regimen. Patients with chronic idiopathic constipation are categorised into three groups:

- patients with normal colon transit and evacuation
- patients with evacuatory disorders
- patients with slow colon transit.

A colon transit study is the best way to differentiate these categories of patients. Twenty radio-opaque pellets are swallowed and an abdominal radiograph is performed 3 days later. The patient should not use laxatives during the study period.

If fewer than 8 pellets are visible on the radiograph on day 3, then normal colon transit and evacuation is presumed. This will account for 50% of patients.[4] It is not uncommon for patients with 'severe symptoms' to have no pellets on the radiograph on day 3. These patients have constipation-predominant IBS and usually have prominent abdominal pain and bloating. Management should be in the context of a multidisciplinary approach effective for treating IBS.

More than 8 pellets scattered throughout the colon indicate slow intestinal transit and accounts for 15% of patients.[4] These are generally young women who complain that they rarely get the urge to stool. Histological abnormalities in the myenteric plexus (colon nerve network) and/or interstitial cells of Cajal (colon pacemaker cells) have been demonstrated in these patients. Management can be difficult and consists of a regular laxative regimen. In severe cases surgery may be required.

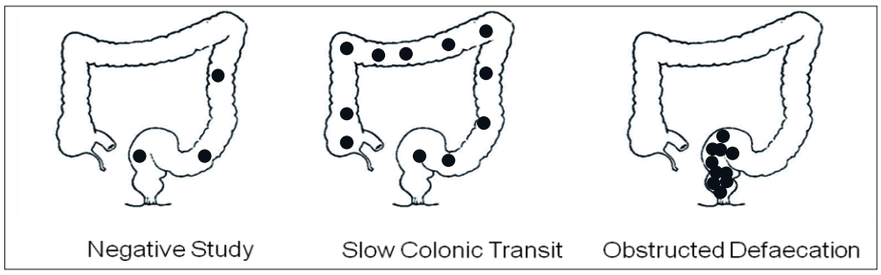

Fig. 2. Day 3 radiographic results after a 20-pellet colon transit study.

A collection of pellets in the rectum suggests an evacuatory disorder and is present in 25% of patients.[4] These patients have normal colon transit but cannot evacuate effectively. This can be due to Hirschsprung's disease (usually young children), intussusception or an enterocoele, which may follow hysterectomy. However, the most common of the evacuatory disorders is pelvic floor dysfunction or anismus. This results from inco-ordination or spasm of the puborectalis muscle. During defecation relaxation of the anal sphincters and puborectalis sling muscle combined with increased intra-abdominal pressure and rectal contraction allows defecation to proceed. If the puborectalis remains contracted an acute angle between the rectum and anus is maintained and evacuation will be ineffective (Fig. 2).

Evacuatory disorders are further assessed using ano-rectal manometry and defecating faecography (similar to urodynamic contrast studies). Evacuatory problems will not respond to laxative treatment and each disorder requires its own specific medical or surgical therapy. Pelvic floor dysfunction requires biofeedback, whereby a skilled pelvic floor therapist teaches a patient to relax the puborectalis muscle during defecation. Hirschsprung's disease, an enterocoele and intussusception require surgical treatment.

Treatment

Critical evaluation of the common lifestyle changes we advocate for patients with idiopathic constipation shows that these have not been scientifically proven. Nevertheless, they can still be advocated if they engender a sense of well-being and are associated with other health benefits, e.g. exercise, an increased fluid intake and a high-fibre diet. However, dangerous interventions such as colonic irrigation should be discouraged.

There are a number of laxatives available, but a review of these agents is beyond the scope of this article. The common agents prescribed include bulk laxatives, osmotic laxatives and stimulant or contact laxatives. In recent years a number of new treatments for constipation have emerged.

Probiotics have been suggested as having favourable effects on gastrointestinal function by suppressing growth of pathogenic bacteria, improving mucosal function and modulating the mucosal immune response. Probiotics have been available for many years, but their popularity for the treatment of constipation has only recently increased. However, randomised placebo-controlled trials studying the effect of probiotics on constipation are limited and show very modest benefit.[4] Furthermore, the bacterial composition and concentrations of probiotics vary, and results with one product cannot not be extrapolated to all probiotics. A number of patients with chronic constipation have IBS. The placebo response in this condition is high and may contribute to the anecdotal experience of their usefulness in treating constipation.

Lubiprostone has been registered by the FDA for the treatment of adults with chronic idiopathic constipation. This fatty acid derivative increases intestinal chloride secretion, followed by intraluminal fluid, which increases intestinal transit and eases the passage of stool. Randomised placebo-controlled trials show promising results, with lubiprostone faring significantly better than placebo in inducing spontaneous bowel movements, usually within 24 - 48 hours.[5]

Tegaserod, a drug registered for constipation-predominant IBS, was withdrawn from the market because of cardiac safety concerns.

Critical evaluation of the common lifestyle changes we advocate for patients with idiopathic constipation shows that these have not been scientifically proven.

Randomised placebo-controlled trials studying the effect of probiotics on constipation are limited and show very modest benefit.

Refinements in this class of drug, the 5-hydroxy-tryptamine-4 (5-HT_4) agonists, have been made and the more selective prucalopride shows promising results in the treatment of constipation.[5]

In summary, patients with chronic idiopathic constipation should be referred for specialist assessment if symptoms are severe, if a secondary cause is not identified, and if they do not respond to lifestyle changes and a regular laxative regimen. Evaluation with a colon transit study, ano-rectal manometry or defecating faecography may result in customised medical or surgical treatment with a good outcome.

This article is modified, with permission, from an article published in *Update*.

References

1. Lembo A, Camilleri M. Current Concepts: Constipation. N Engl J Med 2003; 349: 1360-1368.
2. Reed R. Traditional enema therapy in rural African children. *S Afr Med J* 1995; 85(2): 113-114.
3. Muller-Lissner SA, Kamm MA, Scarpignato C. Myths and misconceptions about chronic constipation. *Am J Gastroenterol* 2005; 100: 232-242.
4. Bharucha AE. Constipation. Best Practice. *Res Clin Gastroenterol* 2007; 21: 709-731.
5. Pohl.D, Tutuian R, Fried M. Pharmacologic treatment of constipation: what is new? *Curr Opin Pharmacol* 2008; 8: 724-728.

In a nutshell

- Constipation is a common problem and a prevalence of 2 - 27% in the USA has been reported.
- Constipation is defined as:
  - difficult passage of stool
  - infrequent passage of stool
  - sensation of incomplete evacuation.
- It is important to recognise the overlap between constipation and the functional gastrointestinal disorders or IBS.
- Chronic idiopathic constipation usually occurs in young women; however, the elderly may be affected as well.
- Investigation for secondary causes of constipation in young patients is often unrewarding.
- Patients with chronic idiopathic constipation are categorised into three groups:
  - patients with normal colon transit and evacuation
  - patients with evacuatory disorders
  - patients with slow colon transit.
- A colon transit study is the best way to differentiate these categories.
- The common agents prescribed include bulk laxatives, osmotic laxatives and stimulant or contact laxatives.
- In recent years a number of new treatments for constipation have emerged.

Single Suture

Breath test for lung cancer

A puff of exhaled air could give an early warning of lung disease by changing a liquid into a gel, according to Anne McNeil and colleagues from the University of Michigan, Ann Arbor.

Tuberculosis, lung cancer and influenza all raise the levels of nitric oxide (NO) in the breath, but currently expensive and sophisticated machinery is required to test for NO. McNeil and colleagues have developed a cheaper test. They have shown that NO oxidises a solution of the compound dihydropyridine, changing the shape of its molecules so that they stack together to form a solid gel, which can been seen as it happens.

New Scientist 28 March 2009: 14.