Constipation
in infants and children

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Constipation is a common problem in childhood and is usually functional, often involving stool withholding. Successful management requires parent education, behavioural strategies, laxatives (often long term) and ongoing review.

Remember

- Constipation affects up to 30% of children, and peak incidence is at the time of toilet training.[1-3]
- Constipation is defined by the frequency of stooling (fewer than two per week in children over 4 years of age), but more importantly by stool consistency and difficulty with which stools are passed (Case Study 1, Box 1).
- Constipation arising beyond the neonatal period is usually functional constipation; this diagnosis can be made clinically after a careful history and physical examination, looking for red flags that may suggest organic pathology.
- Faecal incontinence (encopresis) develops in up to 50% of children with chronic untreated constipation and has a significant psychosocial impact.[4]
- Management of constipation is often a long-term process that requires the complementary approaches of careful education of the child and parents, behavioural techniques, laxative agents and review.

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Assessment

- Take a detailed toileting history (Box 2) and consider whether the child meets the Rome IV criteria for functional constipation (Box 3).[3]
- Check for red flags suggestive of an organic cause for constipation (Table 1).
- Perform a thorough physical examination: assess growth, palpate the abdomen for faecal masses, inspect the perianal and lumbosacral areas; and perform a lower limb neurological examination.
- Avoid digital rectal examination in primary health care as it rarely contributes to the clinical assessment and is distressing to the child.
- If the likely diagnosis is functional constipation then no further investigation is required. Abdominal x-ray is not required to diagnose constipation or determine response to therapy.[3,5]
- Consider coeliac serological testing in children with constipation and poor growth, a history of recurrent abdominal pain, poor response to treatment or a family history of coeliac disease. Measurement of thyroid stimulating hormone levels is recommended in children with impaired height growth, depressed reflexes or a history of central nervous system disease.[6]
- If a pathological cause for constipation is suspected, then appropriate investigations should be performed in consultation with a paediatrician or paediatric surgeon.

Management

- Successful long-term management of childhood constipation requires a combination of education, behavioural measures and laxatives. Behavioural measures combined with laxative therapy are superior to either therapy alone in children with faecal incontinence.[7]
- An explanation of the relationship between stool withholding behaviour and functional constipation should be given to parents. For example, 'Children who experience

1. CASE 1: A TWO-MONTH-OLD BABY WITH DISTRESS ON DEFAECATION

Case scenario

Mary brings her 2-month-old baby, Anne, into your practice concerned that she is constipated. Anne is breastfed and opens her bowels once every two days. Mary describes Anne going red in the face and screaming with the effort of defaecation before passing a soft motion that has no blood or mucus in it. Anne was born at term after a normal pregnancy and passed meconium within 24 hours. She has been tracking along the 30th percentile for weight and length. Physical examination reveals a soft and nontender abdomen, normal tone and movement of her legs and normal appearance of her anogenital and sacral regions with no anal fissure.

Discussion

Normal breastfed infants can stool as infrequently as once per week;[8] it is the firm consistency of stool that makes a diagnosis of constipation in an infant. This child does not have constipation. Infant dyschezia is a functional disorder defined as greater than 10 minutes of straining and crying before successful passage of soft stool in an otherwise healthy infant younger than 9 months of age.[9] It is thought to be secondary to inadequate relaxation of the pelvic floor during defaecation.[9] Parents should be reassured that this will resolve spontaneously as the infant matures and does not require treatment with laxatives.

pain from hard stools start to avoid going to the toilet, leading to more stool building up in the lower bowel. They eventually develop an overstretched rectum, which holds a large amount of stool that becomes harder and more difficult to pass, encouraging more holding on. We need to use a combination of behavioural strategies and laxative medicine to stop this cycle'.

2. TOILETING HISTORY CHECKLIST

- Stool consistency and frequency
- Defaecation pain, rectal bleeding, straining
- Urinary or faecal incontinence
- Withholding behaviours
- Age of onset
- Timing of meconium passage
- Growth trends
- Diet history (fibre and fluid)
- 'Red flag' features

3. ROME IV CRITERIA FOR FUNCTIONAL CONSTIPATION IN CHILDREN[3]

- At least two of the following present for at least one month in a child aged 4 years or over:
  - Two or fewer defaecations in the toilet per week
  - At least one episode of faecal incontinence per week
  - History of retentive posturing or excessive volitional stool retention
  - History of painful or hard bowel movements
  - Presence of a large faecal mass in the rectum
  - History of large diameter stools which may obstruct the toilet
- Symptoms not fully explained by another medical condition and do not meet criteria for a diagnosis of irritable bowel syndrome

An explanation of the relationship between stool-withholding behaviour and functional constipation should be given to parents

Laxative therapy

- Faecal impaction is often signified by palpable abdominal faecal mass and accompanied by faecal incontinence, known as encopresis (Case Study 2, Box 4).[8,9] This requires a disimpaction regime. First-line disimpaction is with oral macrogol 3350 at a dose of 1 to 1.5 g/kg per day. A guide to approximate starting doses is provided in Table 2. Disimpaction doses are needed for at least four days and often for up to a week, until rectal effluent is free of lumps and there is no longer a palpable abdominal mass. Use of enemas or suppositories is rarely indicated in the primary health care setting.
- Maintenance laxative therapy should be commenced straight after disimpaction and is often required for many months after normalisation of stools so behavioural modifications have become routine and a distended rectum can return to a normal calibre. Maintenance doses will need to be adjusted in small increments to achieve the passage at least every one to two days of easily passed soft stools.
- Continue maintenance treatment until the child has been free of symptoms for three to six months. Many children will require laxatives long term, and parents should be reassured that this is both safe and appropriate, particularly in the case of osmotic laxatives.
- We recommend the use of macrogol in children of all ages because studies have found it to be equal to or more effective than other therapies and to be the most tolerable as it can be mixed with almost any fluid.[10,11]
- Oral macrogol has been found to be as effective as enema therapy for disimpaction, so rectal therapy should be reserved for those with severe or unresponsive constipation.[12]
- In infants, both sorbitol-containing fruit juice and lactulose are effective and safe alternatives to macrogol, but large doses of lactulose can be

associated with cramping. Paraffin oil should be avoided in infants and children in whom aspiration may occur, because of the risk of lipoid pneumonia. Stimulant laxatives (bisacodyl) are also not recommended in this age group because they can cause abdominal pain. Glycerol suppositories are not recommended as they are associated with anal irritation.

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Behavioural therapy

- The child should be encouraged to sit on the toilet for five minutes, two or three times daily, ideally within 30 minutes of meals to take advantage of the gastrocolic reflex.
- Positive reinforcement for sitting (e.g. reward charts) should be provided. Children should never be punished for being constipated or incontinent.
- A healthy diet should be encouraged. There is little evidence that increasing fibre is an effective treatment for childhood constipation.[5]
- Adequate water intake to avoid dehydration is important when using osmotic laxatives.[5]
- There is limited evidence that avoiding cow's milk may result in improvement in some children with chronic constipation, particularly in those with atopic tendencies. Any trial of dairy elimination should be limited to two to four weeks and the child should be rechallenged for confirmation of any significant effect. Prolonged elimination diets require supervision by a dietitian to ensure nutritional deficiencies do not develop.[5]

TABLE 1. RED FLAG FEATURES SUGGESTIVE OF AN ORGANIC CAUSE FOR CONSTIPATION

Clinical feature	Possible pathological causes
• Failure to pass meconium by the age of 48 hours or constipation from the neonatal period	• Hirschsprung disease • Intestinal pseudo-obstruction • Hypothyroidism • Cystic fibrosis
• Ribbon-like stools	• Anorectal stricture
• Abdominal distension or vomiting	• Hirschsprung disease • Intestinal pseudo-obstruction
• Poor weight gain	• Hirschsprung disease • Hypothyroidism • Coeliac disease • Cystic fibrosis
• Abnormal appearance, position or patency of anus	• Imperforate anus • Anteriorly displaced anus • Anal stenosis • Hirschsprung disease
• Urinary incontinence • Lumbosacral abnormalities • Gluteal asymmetry or wasting • Abnormal result on lower limb neurological examination	• Spinal dysraphism • Cerebral palsy

4. CASE 2: A FIVE-YEAR-OLD BOY WITH ENCOPRESIS

Case scenario

Jack, a 5-year-old boy is brought to you by his grandmother who is concerned that he has bowel accidents. He passes small amounts of stool into his underwear numerous times each day and doesn't seem aware that it has occurred. When he does pass a stool into the toilet, it is large calibre and hard. Jack has been given lactulose in the past with little effect.

Jack is continent of urine, and has no other significant past history. He had no delayed meconium passage. He had a large firm mass palpable in the lower abdomen extending to just below the umbilicus. His perianal area is soiled but the anus is closed and there are no external fissures or fistulae seen.

Discussion

This child has faecal impaction and the situation will not improve until the large faecal mass is eliminated. He requires a disimpaction regime using oral macrogol 3350 (see Table 2).

Jack will require ongoing maintenance laxative treatment for many months, titrated so that he is able to pass soft stools, ideally on the looser side of normal. This will allow his overdistended rectum to return to a normal calibre where normal rectal sensation can occur. He also requires behavioural management. Recurrence of encopresis in a case like Jack's often means that faecal impaction has recurred owing to inadequate dose or duration of maintenance laxative therapy, or retentive behaviour.

TABLE 2. STARTING DOSES FOR DISIMPACTION AND MAINTENANCE THERAPY USING ORAL MACROGOL 3350*

Approximate patient weight (kg)	Disimpaction		Maintenance	
	6.5 g sachets or 8.5 g scoops	13.1 g sachets or 17 g scoops	6.5 g sachets or 8.5 g scoops	13.1 g sachets or 17 g scoops
5 to 10	0.5 to 1	–	0.5	–
10	2	1	1	1
15	4	2	2	1
20	4	2	2	1
25	6	3	4	2
30	6	3	4	2
35	6	3	4	2
40	–	4	–	2
45	–	4	–	3
50	–	5	–	3
55	–	5	–	3
60	–	5	–	3

*Off label for children under 2 years of age, although there is evidence for efficacy and safety in younger children.[11]

Long-term management

- Regular review is required to monitor response to therapy, adjust laxative dose, continue education, reinforce the management plan and support the family through what is often a long and frustrating period.
- Failure to respond should prompt review of the management plan including adherence, and may prompt reconsideration of pathological causes and further investigation.

Conclusion

- Constipation is very common in childhood and is usually functional.
- Further investigation and referral is guided by the presence of 'red flags'.
- A holistic treatment approach including education, behavioural modification and often long-term laxative use is required for successful treatment.
- Long-term use of osmotic laxatives has been shown to be safe and well tolerated in clinical studies.
- Oral macrogol 3350 is the preferred laxative agent; rectal therapy is unnecessary in most cases and is rarely indicated in the primary health care setting.
- If a child fails to respond to standard therapy, adequate dose titration of the prescribed laxative and implementation of behavioural strategies should be confirmed before considering further investigations or referral.

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