CONSTIPATION: EVALUATION AND TREATMENT

Quak Seng Hock

A normal pattern of stool evacuation is often regarded as a sign of good health. During the few months of life, parents usually pay close attention to the frequency, consistency as well as the color of their babies’ stools. Any deviation from what is thought to be normal by the family may trigger off a visit to the family physician. It is not surprising as about 5% of family physician outpatient visits and about 25% of gastroenterology consultations are related to defecation disorders.

Contents

- Normal bowel movements
- Functional constipation
- Stool withholding behaviour
- Evaluation
  - History taking
  - Physical examination
- Management
  - Education
  - Disimpaction
  - Maintenance therapy
Normal bowel movements

- Bowel frequency varies quite widely in pediatric age group.
- Bowel frequency is influenced by age and diet.
- Newborn infants tend to have more frequent stools compared to older children.
- Breast-feeding tends to have more frequent stools compared to formula fed children.
- Breast-feeding stools can range from as infrequent as once in several days to as many as ten to twelve stools per day.
- In older children, passing out stools once in 2 to 3 days may be normal, provided that these children are thriving well without any other symptoms and signs.
- On the average, Singapore infants pass 2 stools daily, those between 1 and 3 years of age, the average daily bowel movement is 1.5 and for those older than 3, the daily average is one.

Functional constipation

- This refers to constipation without objective evidence of a pathologic condition. It is most commonly due to voluntary withholding of feces by a child who wants to avoid the unpleasant experience of defecation.
- Many events can lead to painful or unpleasant defecation. These include toilet training, changes in routine or diet, stressful events, intercurrent febrile illness, unavailability of toilet facilities or the child’s postponing defecation because he/she is too ‘busy’ playing.
- The most common precipitating event is a febrile illness when the patient develops some degree of dehydration and poor appetite. This leads to failure to open the bowel and subsequent constipation.
- Withholding of feces leads to stasis of feces in the colon, with reabsorption of fluids with increase in size and harder consistency of the stools.
- The passage of large caliber, hard stools causes painful stretching of the anus. Anal fissure may occur. This leads to a fear for subsequent defecation.

Stool withholding behavior

- Affected children respond to the urge to defecate by contracting the anal sphincter and gluteal muscles. They rise on their toes and rock back and forth while stiffening their buttocks and legs, or wriggle, fidget or assume unusual postures, often performed while hiding in a corner.
- As the rectal wall stretches, fecal caliber increases and soiling may occur.
- After a number of days without bowel movements, irritability, abdominal distension, cramps and decreased oral intake may result.
History taking

- History of bowel habits: frequency of stools, pain or bleeding with the passing of stools, abdominal pain, waxing and waning of symptoms, age of onset, toilet training, fecal soiling, withholding behavior, nausea and vomiting, weight loss, perianal fissure or fistula.
- Dietary and drug history: current diet and medications as nutritional supplements or for treatment of medical conditions.
- Previous treatment: dietary and medications, prior successful treatment, behavior treatment, results of prior tests.
- Family history: assess family support, estimate parent and patient adherence to treatment, significant illness in the family.
- Development history: birth and perinatal events, milestones.
- Medical/surgical history: urinary tract infection, allergies.
- Psychosocial history: psychosocial disruption of child and family, interaction with peers, temperament, toilet habits at school.

Physical examination

- General appearance
- Vital signs
- Growth parameters
- Evidence of hypothyroidism
- Abdomen: distension, palpable organs, fecal mass
- Other organ systems
- Anal examination: tone, position, skin tag, fissures, perianal erythema
- Rectal examination: anal tone, fecal mass, presence of stool, other mass, blood in the stool
- Examination of the back and spine
- Neurologic examination: tone, power, cremasteric reflex, deep tendon reflexes

Management

Decide whether the constipation is organic or functional. The following are features indicating an organic cause for the constipation.

- Failure to thrive
- Abdominal distension
- Loss of lumbosacral curve
- Persistence of a palpable bladder
- Piloidal dimple, abnormalities of the lower spine
- Sacral agenesis
• Flat buttock
• Anteriorly displaced anus
• Patulous anus
• Tight, empty rectum in the presence of palpable abdominal fecal mass
• Gush of liquid and air from the rectum on withdrawal of finger
• Occult blood in stool
• Absence of anal wink
• Absence of cremasteric reflex
• Decrease tone and power of the lower extremities
• Absence or delay in relaxation phase of deep tendon reflexes in the lower extremities

Education

• Demystification of constipation
• Explanation of pathogenesis of constipation
• Parents to understand that soiling from overflow incontinence is not a willful and defiant behavior
• Encourage parents to maintain a consistent, positive and supportive attitude

Disimpaction

• Fecal impaction is defined as a palpable hard mass in the lower abdomen identified during physical examination, a dilated rectum filled with a large amount of stools, or excessive stools in the colon identified by abdominal X-ray.
• Disimpaction is necessary before initiation of maintenance therapy.
• Oral medication: high dose mineral oil, polyethylene glycol electrolyte solutions.
• Rectal disimpaction: saline enema or mineral oil enemas.

Maintenance therapy

Aims to prevent recurrence

1) Dietary intervention
   • Increase intake of fluid and absorbable and nonabsorbable carbohydrates as a method to soften the stools.
   • Carbohydrates found in some juices such as prune, pear and apple juices can cause increase in water content of stools and frequency of stool passage.
   • Balanced diet that includes grains, fruits and vegetables.

2) Behavior modification
   • Maintain regular toilet habit
   • Unhurried time on the toilet bowl after meals is recommended
• Maintain a diary to record each bowel movement

3) Medication: a list of common medications that are commonly used in pediatrics for treatment of constipation is shown in table 1.
### Table 1: a list of common medications for constipation

<table>
<thead>
<tr>
<th>Laxatives</th>
<th>Dosages</th>
<th>Side effects</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>lactulose</td>
<td>1-3 ml/kg/day in divided doses</td>
<td>Flatulence, abdominal pain</td>
<td>Synthetic disaccharide Well tolerated in long term treatment</td>
</tr>
<tr>
<td>Glycerin suppositories</td>
<td></td>
<td>Minimal side effects</td>
<td></td>
</tr>
<tr>
<td>Liquid paraffin (agarol)</td>
<td>6 months –2 years: 2.5ml 3 – 5 years: 2.5-5 ml &gt;5 years: 5ml (8 to 24 hourly orally)</td>
<td>Not recommended for very young children Causes lipid pneumonia if aspirated</td>
<td>Softens stool and decreases water absorption. Presence of anal leakage indicates overdosage</td>
</tr>
<tr>
<td>Osmotic enemas (Fleet enema for children)</td>
<td>Avoided in children under 2 years 2-5 years:/2 bottle 5-11years: bottle</td>
<td>Risk of mechanical trauma</td>
<td>Side effects mostly occur in children with renal failure or Hirschsprung disease</td>
</tr>
<tr>
<td>Polyethylene glycol-electrolyte solutions</td>
<td>For disimpaction: 25ml/kg/hr by nasogastric tube until bowels clear or 20ml/kg/hr for 4 hr/day</td>
<td>Difficult to take. Nausea, bloating, abdominal cramps, vomiting and anal irritation. Aspiration, pneumonia, pulmonary edema.</td>
<td>May require hospitalization for disimpaction treatment</td>
</tr>
</tbody>
</table>
Figure 1: an algorithm for management of functional constipation in children

- Constipation: delayed or difficult defecation for > 2 weeks

  - History/physical examination
    - Any red flags: e.g. fever, vomiting, abdominal distension, bloody diarrhea, growth failure, anal stenosis, and tight empty rectum
      - No
        - Functional constipation
          - Is there fecal impaction?
            - Yes
              - Disimpaction with oral and/or rectal medication
                - Effective?
                  - Yes
                    - Maintenance therapy
                  - No
                    - Effective?
                      - No
                        - Education, diet, oral medication, diary, close follow up
                          - Treatment effective?
                            - No
                              - Refer for further evaluation
                            - Yes
                              - No
            - No
              - Refer for further evaluation

- Yes
  - Refer for further evaluation

- No
  - Refer for further evaluation