CASE FOUR

Short case number: 3_21_4
Category: Gastrointestinal and Hepatobiliary systems
Discipline: Medicine
Setting: General Practice_Rural
Topic: Constipation [SDL]

Case

Una Fong, a 70-year-old retired librarian, presents to you, her General Practitioner.

She is yet again troubled by her 'bowels' you note from her records that she has presented several times with constipation and has been investigated in the past with no serious cause found.

Una has not opened her bowels in the last 48 hours and is now feeling quite uncomfortable with moderate pain.

She normally has a high fibre diet and rarely eats processed food, she grows all her own vegetables on the farm, so cannot understand why her bowels are such a problem.

Questions

1. What is constipation and outline the possible causes of constipation.
2. What are the key features of Una's history that you would explore to 'rule out' a more serious cause for her problem?
3. What key aspects of the physical examination would you review in your assessment of Una and why?
4. What investigations are used to assess constipation and when would they be recommended?
5. Una has tried several over the counter laxatives and is concerned about continuing to use them. In a table summarise the mechanism of action, indications, contraindications and side effects for the following classes of laxatives bulk forming, stimulant and osmotic.
6. Una enquires about the use of enemas describe the different types of enemas and suppositories and outline their mechanism of action.

Suggested reading:

- Kumar P, Clark ML, editors. Kumar & Clark's Clinical Medicine. 8th edition. Edinburgh: Saunders Elsevier; 2012.

ANSWERS

1. 'Constipation' is a very common symptom, particularly in women and the elderly.
It is often more of a perception than a real entity. A consensus definition used in research (The Rome II criteria) defines constipation as having two or more of the following for at least 12 weeks:
   - infrequent passage of stools (<3/week)
   - straining > 25% of the time
   - passage of hard stools
   - incomplete evacuation and sensation of anorectal blockage.

   According to these definitions 'constipation' affects more than 1 in 5 of the population. However, it is important to know the patient's lifelong pattern; some healthy people have their bowels open only once or twice a week and do not seek or need help for this.

   CAUSES OF CONSTIPATION

   General
   Pregnancy
   Inadequate fibre intake
   Immobility

   Metabolic/endocrine
   Diabetes mellitus
   Hypercalcaemia
   Hypothyroidism
   Porphyria

   Functional
   Irritable bowel syndrome
   Idiopathic slow transit

   Drugs
   Opiates
   Antimuscarinics
   Calcium-channel blockers eg verapamil
   Antidepressants eg tricyclics
   Iron

   Neurological
   Spinal cord lesions
   Parkinson's disease

   Psychological
   Depression
   Anorexia nervosa
   Repressed urge to defaecate

   Gastrointestinal disease
   Intestinal obstruction and pseudo-obstruction
   Colonic disease, eg. carcinoma, diverticular disease.
   Aganglionosis eg. Hirschprung's, Chagas' disease

   Defaecatory disorders
   Rectal prolapse, mucosal prolapse intussusception and solitary rectal ulcer syndrome
   Large rectocoele
   Pelvic floor dyssynergia/anismus
   Megarectum

2. The following signs and symptoms should be concerning:-
   - Rectal bleeding +/- passage of mucus
   - Abdominal pain - severe, worsening
   - Inability to pass flatus
   - Vomiting
   - Unexplained weight loss

3. Abdominal examination:-
   - distension with loud, high-pitched 'tinkling' bowel sounds suggestive of obstruction or complete absence indicative of a paralytic ileus.
   - tenderness either localized (left iliac fossa suggestive of diverticulitis) or generalized with possible guarding or rebound indicating an inflammatory or infective process
   - localized mass suggestive of faecal retention, malignancy or fluid collection
   - organomegaly suggestive of malignancy - primary or metastatic

   Anorectal examination - causes of constipation may include the following:
   - anal fissure, partially obstructing rectal masses, rectal prolapse

   Pelvic examination in women should specifically address the posterior vaginal wall, with attention to any evidence of internal prolapse or rectocoele.

   A component of a complete physical evaluation of the patient should be to look for evidence of systemic diseases contributing to constipation. Such systemic diseases include the following.
      - endocrine dysfunctions, such as hypothyroidism, hypopituitarism or diabetes mellitus.
      - neurological abnormalities, such as brain or spinal cord injuries, peripheral neuropathy, multiple sclerosis or Parkinson's disease

4. When there has been a recent change in bowel habit in association with other symptoms (e.g. rectal bleeding) a barium enema or colonoscopy is indicated, preferably the latter because it allows a biopsy to be performed if indicated. The former should always be preceded by a rectal examination and sigmoidoscopy to exclude anorectal lesions that can otherwise be missed. By these means, gastro-intestinal causes such as colorectal cancer and narrowed segments due to diverticular disease can be excluded.

   Constipation can be classified into three broad categories but there is much overlap:
      - normal transit through the colon (59%)
      - defaecatory disorders (25%)
      - slow transit (13%)

   Normal-transit constipation can be distinguished from slow-transit constipation by undertaking marker studies of colonic transit. Capsules containing 21 radio-opaque shapes are swallowed on days 1, 2 and 3 and an abdominal X-ray obtained 120 hours after ingestion of the first capsule. Each capsule contains shapes of different configuration and the presence of more than 4 shapes from the first capsule, 6 from the second and 12 from the third denotes moderate to severe slow transit.

   In normal-transit constipation, the stool frequency is normal and yet patients believe they are constipated. This is likely to be due to perceived difficulties of evacuation or the passage of hard stools. Patients may complain of abdominal pain or bloating.

   Slow-transit constipation occurs predominantly in young women who have infrequent bowel movements (usually less than once per week). The condition often starts at puberty and the symptoms are usually an infrequent urge to defaecate, bloating, abdominal pain and discomfort (difficult to distinguish from constipation-predominant IBS). Some patients with severe slow-transit constipation have delayed emptying of the proximal colon and others a failure of 'meal-stimulated' colonic motility.

In defaecatory disorders, a 'paradoxical' contraction of the puborectalis and external anal sphincter and associated muscles during straining may prevent evacuation (pelvic floor dyssynergia, anismus). An anterior rectocoele where there is a weakness of the rectovaginal septum can result in protuberance of the anterior wall of the rectum with trapping of stool if the diameter is > 3cm. In some patients the mucosa of the anterior rectal wall prolapses downward during straining impeding the passage of stool, whilst in others there may be a higher mucosal intussusception.

5. More Bulk → Stretch Stimulate Nerves ↑ Water → Make things softer.

	BULK-FORMING LAXATIVES	STIMULANT LAXATIVES	OSMOTIC LAXATIVES
Examples	dietary fibre, wheat bran, methylcellulose, sterculia, ispaghula husk, psyllium	phenolphthalein, bisacodyl, senna, docusate sodium	magnesium sulphate, lactulose, macrogols
Mechanism of action	absorb water in the colon to increase faecal bulk which stimulates peristaltic activity	act by direct stimulation of nerve endings in colonic mucosa to increase intestinal motility and cause intestinal secretion	increase colonic inflow of fluid and electrolytes ,this acts to soften the stool and stimulate colonic contractility
Indications	constipation , regulate faecal consistency for colostomy or ileostomy	constipation bowel preparation	constipation hepatic encephalopathy (lactulose) faecal impaction, bowel preparation (macrogol)
Contraindications	intestinal obstruction, partial or complete. colonic atony	intestinal obstruction, partial or complete Acute abdominal conditions e.g. appendicitis Inflammatory bowel condition	Intestinal obstruction, partial or complete. severe colitis, threatened perforation
Side effects	flatulence, bloating, abdominal discomfort	diarrhoea, fluid and electrolyte imbalance (prolonged use or excessive doses), abdominal discomfort, cramps, nausea, faecal incontinence generally best avoided for chronic constipation because of tolerance: with time, progressively higher doses are needed	nausea, vomiting, diarrhoea, anal irritation, abdominal distension, cramps, abdominal pain, abdominal discomfort, flatulence

6. The use of irritant suppositories can be helpful in some patients with defaecatory disorders. The use of enemas should be restricted to the management of elderly, infirm and immobile patients and those with neurological disorders.

Suppositories

i. Bisacodyl - stimulant laxative causing direct stimulation of nerve endings in colonic mucosa to increase intestinal motility and cause intestinal secretion.
ii. Glycerol - osmotic laxative which draws water into the faeces, has lubricating properties and may also act as a stimulant by its local irritant effects.

Enemas

i. Docusate sodium – stimulant laxative which softens stool by assisting mixture of water into faeces. May also increase intestinal fluid secretion.
ii. Saline laxatives - (sorbitol/sodium citrate/sodium lauryl sulfoacetate; sodium phosphate monobasic, sodium phosphate dibasic) contain poorly absorbed ions such as magnesium, sulfate, phosphate and citrate which retain fluid in the colon by osmotic effect and stimulate peristalsis.

References

1. Kumar P, Clarke M, Clinical Medicine, 6th Ed. Elsevier 2005. Gastrointestinal disease Chap. 6 Pp 320 – 322
2. Australian Medicines Handbook 2007