Constipation

Introduction:

Constipation is exceedingly common and is rarely associated with mortality in developed countries, leading to frequent self-medication and, in a third of those, to medical consultation. Population statistics on chronic constipation is more uncertain, perhaps due to variable definitions and reporting, but the frequency of these conditions is also high. With constipation stools are usually hard, dry, small in size, and difficult to eliminate. Some people who are constipated find it painful to have a bowel movement and often experience straining, bloating, and the sensation of a full bowel.¹

Constipation is a symptom, not a disease. Almost everyone experiences constipation at some point in their life, and a poor diet typically is the cause. Understanding its causes, prevention, and treatment will help most people find relief. Although constipation may present as mere nuisance symptoms at one extreme, they can be severe or life-threatening at the other. Even mild symptoms may signal a serious underlying gastrointestinal lesion, such as colorectal cancer, or systemic disorder, such as thyroid disease. Given the heterogeneous causes and potential severity of these common complaints, it is imperative for clinicians to appreciate the pathophysiology, etiologic classification, diagnostic strategies, and principles of management of constipation, so that rational and cost-effective care can be delivered.²

Normal Physiology:

While the primary function of the small intestine is the digestion and assimilation of nutrients from food, the small intestine and colon together perform important functions that regulate the secretion and absorption of water and electrolytes, the storage and subsequent transport of intraluminal contents abnormally, and the salvage of some nutrients after bacterial metabolism of carbohydrate that are not absorbed in the small intestine. The main motor functions are summarized below in a tabular manner. Impairment in motor and sensory functions of the colon result in highly prevalent syndromes such as irritable bowel syndrome (IBS), chronic diarrhoea, and chronic constipation.³
Table Showing Normal Gastrointestinal Motility: Functions at Different Levels

<table>
<thead>
<tr>
<th>Stomach and small bowel</th>
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<tbody>
<tr>
<td>Synchronized MMCs in fasting</td>
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<tr>
<td>Accommodation, trituration, mixing, transit</td>
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<tr>
<td>Stomach ~3 h</td>
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<tr>
<td>Small bowel ~3 h</td>
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<tr>
<td>Ileal reservoir empties boluses</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Colon: irregular mixing, fermentation, absorption, transit</th>
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<tr>
<td>Ascending, transverse: reservoirs</td>
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<tr>
<td>Descending: conduit</td>
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<tr>
<td>Sigmoid/rectum: volitional reservoir</td>
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**Definition:**

Constipation is a common complaint in clinical practice and usually refers to persistent, difficult, infrequent, or seemingly incomplete defecation. Because of the wide range of normal bowel habits, constipation is difficult to define precisely. Most persons have at least three bowel movements per week; however, low stool frequency alone is not the sole criterion for the diagnosis of constipation. Many constipated patients have a normal frequency of defecation but complain of excessive straining, hard stools, lower abdominal fullness, or a sense of incomplete evacuation. The individual patient's symptoms must be analyzed in detail to ascertain what is meant by "constipation" or "difficulty" with defecation. Stool form and consistency are well correlated with the time elapsed from the preceding defecation. Hard, pelley stools occur with slow transit. Both small pelley or very large stools are more difficult to expel than normal stools.

**Clinical definition of Constipation:**

The clinical definition of constipation is having any two of the following symptoms for at least 12 weeks not always consecutive in the previous 12 months:

1. straining during bowel movements
2. lumpy or hard stool
3. sensation of incomplete evacuation
4. sensation of anorectal blockage/obstruction
5. fewer than three bowel movements per week
Causes of Constipation:

Pathophysiologically, chronic constipation generally results from inadequate fiber or fluid intake or from disordered colonic transit or anorectal function. These result from neurogastroenterologic disturbance, certain drugs, advancing age, or in association with a large number of systemic diseases that affect the gastrointestinal tract. Constipation of recent onset may be a symptom of significant organic disease such as tumor or stricture. In idiopathic constipation, a subset of patients exhibit delayed emptying of the ascending and transverse colon with prolongation of transit (often in the proximal colon) and a reduced frequency. Outlet obstruction to defecation (also called evacuation disorders) may cause delayed colonic transit, which is usually corrected by biofeedback retraining of the disordered defecation. Constipation of any cause may be exacerbated by hospitalization or chronic illnesses that lead to physical or mental impairment and result in inactivity or physical immobility.

To understand constipation, it helps to know how the colon, or large intestine, works. As food moves through the colon, the colon absorbs water from the food while it forms waste products, or stool. Muscle contractions in the colon then push the stool toward the rectum. By the time stool reaches the rectum it is solid, because most of the water has been absorbed. Constipation occurs when the colon absorbs too much or to less water or if the colon’s muscle contractions are slow or sluggish, causing the stool to move through the colon too slowly. As a result, stools can become hard and dry. Common causes of constipation are

1. Not enough fibre in the diet
2. Lack of physical activity (especially in the elderly)
3. Medications
4. Milk
5. Irritable bowel syndrome
6. Changes in life or routine such as pregnancy, aging, and travel
7. Abuse of laxatives
8. Ignoring the urge to have a bowel movement
9. Dehydration
10. Specific diseases or conditions, such as stroke (most common)
11. Problems with the colon and rectum
12. Problems with intestinal function (chronic idiopathic constipation)
Types of Constipation:
Constipation can be classified in two types
a) Idiopathic
b) Functional constipation means that the bowel is healthy but not working properly.
Idiopathic - of unknown origin constipation does not respond to standard treatment.
Functional - constipation is often the result of poor dietary habits and lifestyle. It occurs in both children and adults and is most common in women.
i) Colonic inertia,
ii) Delayed transit, and
iii) Pelvic floor dysfunction

These three are types of functional constipation. Colonic inertia and delayed transit are caused by a decrease in muscle activity in the colon. These syndromes may affect the entire colon or may be confined to the lower, or sigmoid, colon. Pelvic floor dysfunction is caused by a weakness of the muscles in the pelvis surrounding the anus and rectum. However, because this group of muscles is voluntarily controlled to some extent, biofeedback training is somewhat successful in retraining the muscles to function normally and improving the ability to have a bowel movement.

Functional constipation that stems from problems in the structure of the anus and rectum is known as anorectal dysfunction, or anismus. These abnormalities result in an inability to relax the rectal and anal muscles that allow stool to exit. People with IBS having predominantly constipation also have pain and bloating as part of their symptoms.

Table Showing Types of Constipation with its examples

<table>
<thead>
<tr>
<th>Types of constipation and Causes</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td><strong>Recent onset</strong></td>
<td></td>
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<tr>
<td>Colonic obstruction</td>
<td>Neoplasm; stricture: ischemic, diverticular, inflammatory</td>
</tr>
<tr>
<td>Anal sphincter spasm</td>
<td>Anal fissure, painful haemorrhoids</td>
</tr>
<tr>
<td>Medications</td>
<td></td>
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<tr>
<td><strong>Chronic</strong></td>
<td></td>
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<tr>
<td>Irritable bowel syndrome</td>
<td>constipation -predominant, alternating</td>
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<tr>
<td>Medications</td>
<td>Ca²⁺ blockers, antidepressants</td>
</tr>
<tr>
<td>Colonic pseudo-obstruction</td>
<td>Slow-transit, constipation megacolon (rare Hirschsprung's, Chagas)</td>
</tr>
<tr>
<td>Disorders of rectal evacuation</td>
<td>Pelvic floor dysfunction; anismus; descending perineum syndrome; rectal mucosal prolapse; rectocele</td>
</tr>
<tr>
<td>Endocrinopathies</td>
<td>Hypothyroidism, hypercalcemia, pregnancy</td>
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<tr>
<td>Psychiatric disorders</td>
<td>Depression, eating disorders, drugs</td>
</tr>
<tr>
<td>Neurologic disease</td>
<td>Parkinsonism, multiple sclerosis, spinal cord injury</td>
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<tr>
<td>Generalized muscle disease</td>
<td>Progressive systemic sclerosis</td>
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**Approach to the Patient:**

A careful history should explore the patient's symptoms and confirm whether he or she is indeed constipated based on frequency (e.g., fewer than three bowel movements per week), consistency (lumpy/hard), excessive straining, prolonged defecation time, or need to support the perineum or digitate the anorectum. In the vast majority of cases (probably >90%), there is no underlying cause (e.g., cancer, depression, or hypothyroidism), and constipation responds to ample hydration, exercise, and supplementation of dietary fiber (15–25 g/d). A good diet and medication history and attention to psychosocial issues are key. Physical examination and, particularly, a rectal examination should exclude faecal impaction and most of the important diseases that present with constipation and possibly indicate features suggesting an evacuation disorder (e.g., high anal sphincter tone).

Measurement of serum calcium, potassium, and thyroid-stimulating hormone levels will identify rare patients with metabolic disorders.

Patients with more troublesome constipation may not respond to fiber alone and may be helped by a bowel training regimen: taking an osmotic laxative (lactulose, sorbitol, polyethylene glycol) and evacuating with enema or glycerine suppository as needed. After breakfast, a distraction-free 15–20 min on the toilet without straining is encouraged. Those few who do not benefit from the simple measures delineated above or require long-term treatment with potent laxatives with the attendant risk of developing laxative abuse syndrome are assumed to have severe or intractable constipation and should have further investigation. Novel agents that induce secretion (e.g., lubiprostone, a chloride channel activator) are also available.

**Investigations of Severe Constipation:**

A small minority (probably <5%) of patients have severe or "intractable" constipation. In these patients, evaluations of the physiologic function of the colon and pelvic floor and of psychological status aid in the rational choice of treatment. Even among these highly selected patients with severe constipation, a cause can be identified in only about two-thirds of tertiary referral patients. Few important investigations which are generally carried out are mentioned bellow.

- Measurement of Colonic Transit
- Anorectal and Pelvic Floor Tests
- Evaluation of non relaxing puborectalis muscle
• Measurement of perineal descent
• Balloon expulsion test
• Anorectal manometry
• Defecography
• Dynamic imaging studies such as proctography
• Neurologic testing (electromyography)

**Treatment of Constipation:**

After the cause of constipation is characterized, a treatment decision can be made. Slow-transit constipation requires aggressive medical or surgical treatment; anismus or pelvic floor dysfunction usually responds to biofeedback management. However, only ~60% of patients with severe constipation are found to have such a physiologic disorder (half with colonic transit delay and half with evacuation disorder). Patients with spinal cord injuries or other neurologic disorders require a dedicated bowel regime that often includes rectal stimulation, enema therapy, and carefully timed laxative therapy.

Patients with slow-transit constipation are treated with bulk, osmotic, prokinetic, secretary, and stimulant laxatives including fiber, psyllium, milk of magnesia, lactulose, polyethylene glycol (colonic lavage solution), lubiprostone, and bisacodyl. If a 3- to 6-month trial of medical therapy fails and patients continue to have documented slow-transit constipation not associated with obstructed defecation, the patients should be considered for laparoscopic colectomy with ileorectostomy.

Patients who have a combined (evacuation and transit/motility) disorder should pursue pelvic floor retraining (biofeedback and muscle relaxation), psychological counselling, and dietetic advice first, followed by colectomy and ileorectostomy if colonic transit studies do not normalize and symptoms are intractable despite biofeedback and optimized medical therapy. In patients with pelvic floor dysfunction alone, biofeedback training has a 70–80% success rate, measured by the acquisition of comfortable stool habits. Attempts to manage pelvic floor dysfunction with operations (internal anal sphincter or puborectalis muscle division) have achieved only mediocre success and have been largely abandoned.
**Diet and Lifestyle Changes:**

A diet with enough fibre (20 to 35 grams each day) helps the body to form soft, bulky stool. High-fibber foods include beans, whole grains and bran cereals, fresh fruits, and vegetables. For people prone to constipation, limiting foods that have little or no fibber, such as ice cream, cheese, meat, and processed foods, is also important.

Other changes that may help treat and prevent constipation include drinking enough water and other liquids, such as fruit and vegetable juices and clear soups, so as not to become dehydrated, engaging in daily exercise, and reserving enough time to have a bowel movement. In addition, the urge to have a bowel movement should not be ignored.
Types of Laxatives:

Most patients who are mildly constipated do not need laxatives. However, for those who have made diet and lifestyle changes and are still constipated, laxatives or enemas can be recommended for a limited time. These treatments can help retrain a chronically sluggish bowel. For children, short-term treatment with laxatives, along with retraining to establish regular bowel habits, helps prevent constipation. A doctor should determine when a patient needs a laxative and which form is best. Laxatives taken by mouth are available in liquid, tablet, gum powder, and granule forms. They work in various ways:

a. **Bulk-forming laxatives** generally are considered the safest, but they can interfere with absorption of some medicines. These laxatives, also known as fiber supplements, are taken with water. They absorb water in the intestine and make the stool softer. These agents must be taken with water or they can cause obstruction.

b. **Stimulants** cause rhythmic muscle contractions in the intestines. Studies suggest that one of most prescribed medicine in this class phenolphthalein, might increase a person’s risk for cancer. In USA Food and Drug Administration (FDA) has proposed a ban on all over-the-counter products containing phenolphthalein

c. **Osmotics** cause fluids to flow in a special way through the colon, resulting in bowel distension. This class of drugs is useful for people with idiopathic constipation.

d. **Stool softeners** moisten the stool and prevent dehydration. These laxatives are often recommended after childbirth or surgery. This class is preferred for people who should avoid straining in order to pass a bowel movement. The prolonged use of this class of drugs may result in an electrolyte imbalance.

e. **Lubricants** grease the stool, enabling it to move through the intestine more easily. Mineral oil is the most common example. Lubricants typically stimulate a bowel movement within 8 hours.

f. **Saline laxatives** act like a sponge to draw water into the colon for easier passage of stool. Saline laxatives are used to treat acute constipation if there is no indication of bowel obstruction. Electrolyte imbalances have been reported with extended use, especially in small children and people with renal deficiency.
g. **Chloride channel activators** increase intestinal fluid and motility to help stool pass, thereby reducing the symptoms of constipation.

People who are dependent on laxatives need to slowly stop using them. For most people, stopping laxatives restores the colon’s natural ability to contract.

**Complications of Constipations:**

Commonest complications of constipation are

1. Haemorrhoids
2. Rectal prolapse
3. Faecal impaction

**Points to Remember:**

- Constipation affects almost everyone at one time or another.
- Many people think they are constipated when, in fact, their bowel movements are regular.
- The most common causes of constipation are poor diet and lack of exercise.
- Other causes of constipation include medications, irritable bowel syndrome, abuse of laxatives, and specific diseases.
- A medical history and physical exam may be the only diagnostic tests needed before the doctor suggests treatment.
- In most cases, following these simple tips will help relieve symptoms and prevent recurrence of constipation:
  a. Eat a well-balanced, high-fibber diet that includes beans, bran, whole grains, fresh fruits, and vegetables.
  b. Drink plenty of liquids.
  c. Exercise regularly.
  d. Set aside time after breakfast or dinner for undisturbed visits to the toilet.
  e. Do not ignore the urge to have a bowel movement.
  f. Understand that normal bowel habits vary.
  g. Whenever a significant or prolonged change in bowel habits occurs, check with a doctor.

Most people with mild constipation do not need laxatives. However, a doctor may recommend laxatives for a limited time for people with chronic constipation.
References: