

Complications of chronic constipation

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Abstract

Chronic constipation is a common condition in Mexico, and its pathophysiology is multifactorial in most cases. When it is not adequately recognized and treated, it may lead to several complications that affect quality of life and, in some cases, may even become life-threatening. The most common complications include hemorrhoidal disease, anal fissure, fecal impaction, descending perineum syndrome, and rectocele. Other less frequent but clinically significant complications include solitary rectal ulcer, stercoral ulcer, rectoanal intussusception, rectal prolapse and colonic volvulus. The initial management of most of these complications, particularly in mild to moderate cases, is based on correcting the underlying constipation.

Keywords: Chronic constipation. Hemorrhoidal disease. Anal fissure. Rectal prolapse. Colonic volvulus. Rectocele.

Complicaciones del estreñimiento crónico

Resumen

El estreñimiento crónico es una condición frecuente en México y su fisiopatología es multifactorial en la mayoría de los casos. Cuando no se identifica y trata de manera adecuada puede dar lugar a múltiples complicaciones que afectan la calidad de vida y, en algunos casos, ponen en riesgo la vida del paciente. Entre las complicaciones más comunes se encuentran las hemorroides, la fisura anal, la impactación fecal, el síndrome de descenso perineal y el rectocele. Otras complicaciones menos frecuentes, pero clínicamente significativas, incluyen la úlcera rectal solitaria, la úlcera estercorácea, la intususcepción rectoanal, el prolapso rectal y el vólvulo del colon. El manejo inicial de la mayoría de estas complicaciones, en los casos leves a moderados, se basa en la corrección del estreñimiento.

Palabras clave: Estreñimiento. Hemorroides. Fisura anal. Prolapso rectal. Vólvulo del colon. Rectocele.

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Introduction

Chronic constipation in Mexico has a prevalence of 14% to 22%. The pathophysiological mechanisms of constipation may occur in isolation or in combination and include slow intestinal transit, evacuation disorders (defecatory dyssynergia), and alterations in rectal sensitivity. When this condition is not adequately treated, it may give rise to various complications (Table 1) that significantly affect quality of life and, in some cases, may become life-threatening.^{1,2}

Hemorrhoidal disease

Hemorrhoids are cushions composed of vascular tissue located in the anal canal that contribute to fecal continence and discrimination of rectal contents. They are classified as internal when located above the dentate line (derived from the endoderm) and as external when they originate below it (derived from the anoderm).

Hemorrhoidal disease occurs when hemorrhoids become engorged, inflamed, and prolapsed, causing pruritus, bleeding, and soiling of undergarments. Pain may also occur when an external hemorrhoidal bundle becomes thrombosed or an internal hemorrhoidal bundle becomes strangulated. Internal hemorrhoidal disease is classified according to the degree of displacement outside the anal canal and whether it is reducible (spontaneously, manually, or non-reducible).³⁻⁵

Constipation is a factor frequently associated with hemorrhoidal disease, likely due to increased intra-abdominal pressure and prolonged straining during defecation. However, hemorrhoidal disease may also occur in patients with chronic diarrhea.⁶

Prevention and treatment of low-grade hemorrhoids is based on improvement of bowel habits, including adequate hydration, a fiber intake of at least 20-30 g/day, avoiding sitting on the toilet for more than 10 minutes, and the use of osmotic laxatives as first-line treatment. Sitz baths for 15 minutes after each bowel movement and the use of oral venotonics or flavonoids, such as diosmin with hesperidin, are also recommended for symptom relief. If the patient is refractory to conservative treatment, alternatives include rubber band ligation, sclerotherapy, infrared coagulation, or hemorrhoidectomy.^{3-5,7,8}

Anal fissure

An anal fissure is a linear laceration of the epithelium of the anal canal distal to the dentate line, most

Table 1. Complications of constipation

Common	Uncommon
Hemorrhoidal disease	Colonic volvulus
Anal fissure	Rectoanal intussusception
Fecal impaction	Rectal prolapse
Descending perineum syndrome	Solitary rectal ulcer
Rectocele	Stercoral ulcer

frequently located in the posterior midline. It may arise from local trauma or from ischemia of the anal mucosa. The passage of hard stools, as occurs in patients with constipation, can cause this lesion, which manifests with intense pain during defecation and scant, bright rectal bleeding.

The pain induces spasm of the internal anal sphincter, which perpetuates the injury and favors progression to a chronic fissure (duration > 8-12 weeks). The latter is characterized by Brodie's triad, which includes a proximal hypertrophic anal papilla, exposure of internal anal sphincter muscle fibers, and a distal skin tag.⁴

Treatment of anal fissure is directed at relieving pain, reducing internal anal spasm, and correcting predisposing factors, particularly constipation. Initial measures include optimization of bowel habits and topical application of calcium channel blockers or nitrates.^{3,5,7} In chronic cases, botulinum toxin injection may be considered to reduce anal sphincter spasms. In refractory cases, internal lateral sphincterotomy may be indicated, although it carries a considerable recurrence rate and a potential risk of fecal incontinence in some patients.⁵

Fecal impaction

Fecal impaction occurs when there is prolonged retention of feces in the rectum, which hardens, compacts, and desiccates due to the inability to be expelled. Clinical manifestations include abdominal pain, distension, a sensation of incomplete evacuation, decreased frequency of bowel movements, and, in some cases, overflow fecal incontinence (when liquid stool surrounds the fecaloma). On physical examination, a fecaloma may be palpated on digital rectal examination. When the impaction is located in more proximal segments of the rectum or colon, the fecaloma may be identified by plain abdominal radiograph or computed tomography as a heterogeneous mottled intraluminal mass that dilates the rectum or colon.^{9,10}

Fecal impaction is more prevalent in hospitalized older adults, children with chronic constipation, individuals with neuropsychiatric disorders, and patients in the intensive care unit.

The main complications of fecal impaction are intestinal obstruction, solitary rectal ulcer, and stercoral ulcer, and in older adults, it may cause delirium.^{11,12}

Treatment of impaction depends on the location of the fecaloma and the presence of signs of intestinal obstruction. When the impaction is located in the rectum and is accessible, the initial treatment consists of manual disimpaction, followed by the use of suppositories or enemas to facilitate evacuation of residual fecal contents. In patients with fecal impaction located in more proximal colonic segments, oral osmotic laxatives such as polyethylene glycol may be employed. If oral or enteral laxatives are not tolerated, colonoscopic disimpaction may be attempted, although only case reports exist for this method, and in extreme situations surgery is required.^{9,13-15}

Solitary rectal ulcer

Solitary rectal ulcer is an uncommon disorder associated with evacuation disorders such as defecatory dyssynergia. Its pathophysiology is related to internal prolapse of the rectal mucosa and repeated trauma during straining or manual fecal disimpaction, which causes local ischemia of the rectal mucosa and generates the ulcer. Clinical manifestations include rectal bleeding, mucus discharge, rectal tenesmus, a sensation of incomplete evacuation, and proctalgia.¹⁶⁻¹⁸

Endoscopically, the lesion is usually located on the anterior wall of the rectum as an ulcer or polypoid lesion of variable size. Characteristic histological findings include fibromuscular obliteration of the lamina propria, thickening of the muscularis mucosae, thickened mucosa, and glandular distortion.¹⁹

In a multicenter retrospective study conducted in India, 5,246 anorectal manometry studies were analyzed, and 57 patients were identified with hemorrhoids, chronic anal fissure, or solitary rectal ulcer syndrome.²⁰ These patients showed a higher prevalence of functional evacuation disorders compared with subjects with a normal anorectum (66.7% vs. 20.3%; $p < 0.0001$), as well as a higher frequency of dyssynergic defecation (77.2% vs. 46.8%, $p < 0.0001$) and abnormal balloon expulsion test (66.7% vs. 20.3%, $p < 0.0001$).²⁰ Manometric findings are not diagnostic in themselves and must be interpreted in conjunction with clinical, endoscopic, and histological findings.

Initial management is conservative and is directed primarily at improving bowel habits and addressing the underlying functional disorder. Patients with defecatory dyssynergia benefit from anorectal biofeedback therapy guided by anorectal manometry or electromyography, which is a type of rehabilitation aimed at teaching the patient to defecate without tensing the external anal sphincter and puborectalis muscles. In case series, sucralfate, sulfasalazine, and steroid enemas have been effective in improving symptoms.^{4,9,16-19}

Stercoral ulcer

A stercoral ulcer is an ulcerative lesion of the colon caused by mucosal ischemia secondary to prolonged pressure of fecalomas on the intestinal wall. It occurs in patients with severe chronic constipation, particularly in individuals with reduced mobility. Clinical manifestations include abdominal pain and rectal bleeding. In advanced cases, transmural necrosis leads to colonic perforation.¹⁶

The ulcers are located in colonic segments susceptible to ischemia, such as the sigmoid colon and rectosigmoid. They may be multiple, ranging from 1 to 10 cm, on the antimesenteric side of the colon. Histopathological findings include transmural necrosis, with ulcer margins showing nonspecific inflammatory changes, mononuclear cells in the lamina propria, and crypt abscesses.^{21,22}

Treatment is directed at resolving the fecal impaction and preventing its recurrence by adequately managing chronic constipation. In complicated cases, urgent surgical treatment is required.²³

Descending perineum syndrome

Descending perineum syndrome is a pelvic floor dysfunction characterized by excessive caudal displacement of the pelvic floor during straining, associated with chronic anorectal or urinary symptoms. Its pathophysiology is related to traction forces that damage the suspensory ligaments of the pelvic floor, secondary to instrumental deliveries, pelvic surgeries, or chronic intense straining. This leads to laxity of the pelvic floor, which makes the mechanisms of defecation less efficient due to excessive descent of the pelvic floor that can obstruct the passage of stool; consequently, its main clinical manifestation is constipation due to difficulty evacuating and a sensation of incomplete evacuation.

In advanced stages, neuropathic injury to the external anal sphincter (pudendal nerve) and the puborectalis

muscle (sacral roots) may occur with sensory loss, manifesting as fecal incontinence.²⁴⁻²⁸

On physical examination, it may be suspected when a perineal bulge of more than 3 cm is observed during the Valsalva maneuver.

On anorectal manometry, these patients typically present with decreased resting anal pressure and weak voluntary contraction, and a dyssynergic pattern during simulated defecation is common.²²⁻²⁹

For diagnosis, symptoms are correlated with a descent of the anorectal junction ≥ 3.5 cm below the pubococcygeal line, measured during the simulated maneuver on conventional defecography.²⁴

Treatment is conservative. Supplemental fiber and laxatives or antidiarrheal agents are prescribed and adjusted according to bowel habits. Anorectal biofeedback plays a central and fundamentally rehabilitative role in the management of this syndrome when associated with functional defecatory disorders.^{18,28}

Rectocele

Rectocele is a structural alteration of the posterior compartment of the pelvic floor characterized by herniation of the anterior rectal wall into the vagina, secondary to weakness of the rectovaginal septum. It is observed more frequently in women and may be associated with factors such as vaginal deliveries, pelvic surgery, aging, and chronic constipation.^{4,18}

On imaging, rectocele is identified primarily by conventional defecography or dynamic pelvic floor magnetic resonance imaging, and is defined as protrusion of the anterior rectal wall > 2 cm during the evacuation maneuver. Dynamic MRI defecography is recommended when prolapse of other pelvic organs is suspected (for example, when urinary incontinence coexists).^{28,30}

It is important to note that rectocele may also be an incidental finding on defecography studies (45% of rectoceles are asymptomatic).³¹

When the rectocele is symptomatic, patients may present with a sensation of incomplete evacuation, difficulty evacuating, and the need for digital maneuvers to facilitate bowel movements.

Initial treatment is directed at improving intestinal transit and defecatory mechanics. This includes dietary modifications, use of laxatives, and anorectal biofeedback therapy (response rate of approximately 70%).

Surgical correction is reserved for large (> 3 -5 cm), symptomatic rectoceles that do not respond to conservative treatment, especially when associated with prolapse of other pelvic organs.^{4,5,32,33}

Rectal intussusception

Rectal intussusception, also termed internal rectal prolapse, is characterized by invagination of the rectal wall into the rectal lumen or anal canal during defecation, without exteriorization of the rectum through the anus. It is considered part of the spectrum of structural evacuation disorders associated with pelvic floor weakness and chronic straining.¹⁸

Clinically, patients may present with anal pain, mucus or blood discharge, and a sensation of obstruction during evacuation.

The diagnosis may be suspected during physical examination by feeling a bulge during the evacuation maneuver on digital rectal examination. It is identified primarily by conventional defecography or magnetic resonance imaging, which also allows its classification by grades of intussusception, such as the Oxford grading system.^{34,35}

Treatment is conservative, directed at correcting constipation and improving defecatory mechanics through a high-fiber diet, laxatives, and anorectal biofeedback therapy.

External rectal prolapse

External rectal prolapse is defined as the protrusion of the full thickness of the rectal wall through the anal canal. It is associated with pelvic floor weakness and prolonged straining during defecation.

Clinically, it manifests with the sensation or visualization of an anal mass, anal pain, rectal bleeding, and mucus discharge. It may be associated with a mixed defecatory disorder (constipation alternating with fecal incontinence).

Diagnosis and classification are performed during physical examination and are categorized into four grades according to their relationship to the anal margin and whether they are reducible (spontaneously, manually, or non-reducible).

Treatment depends on the severity of the prolapse and the intensity of symptoms. In early stages, management focuses on optimization of bowel habits, stool softening, and anorectal biofeedback therapy. In cases of rectal prolapse that does not reduce spontaneously, urgent manual reduction is required, followed by surgical repair via a perineal approach (Delorme or Altemeier procedure) or abdominal approach (posterior or ventral rectopexy), selected according to the patient's age, comorbidity, and surgical team experience.^{3,5,7,36,37}

Colonic volvulus

Colonic volvulus is the most common cause of benign mechanical colonic obstruction and results from torsion of a redundant colonic segment around its mesenteric axis. The most frequently affected segments are the sigmoid colon and the cecum.

Sigmoid volvulus accounts for > 60% of cases and is observed more frequently in older adults, especially in patients with chronic constipation, due to fecal overloading that favors elongation and dilation of the colon. Furthermore, chronic constipation has been associated with an increased risk of recurrence after resolution of the acute episode. Cecal volvulus is less frequent and is usually associated with congenital anatomical abnormalities that allow cecal mobility.^{38,39}

Diagnosis is based on the correlation between clinical findings and imaging studies. It presents clinically as a picture of intestinal obstruction with abdominal pain, progressive abdominal distension, vomiting, and inability to pass gas or have a bowel movement. On a plain abdominal radiograph, the “coffee bean sign” may be found, located in the right upper quadrant for sigmoid volvulus and in the left upper quadrant for cecal volvulus. Computed tomography allows confirmation of the diagnosis, identification of the site of torsion, and evaluation of complications such as ischemia or perforation.⁴⁰

Management depends on the affected colonic segment and the presence of complications. In sigmoid volvulus without signs of complications, the initial treatment consists of endoscopic decompression via sigmoidoscopy, with or without placement of a rectal tube to maintain decompression. This approach has success rates ranging from 55% to 94%. However, due to the high recurrence rate, which may exceed 80%, surgical resection of the affected segment is generally recommended following decompression. In contrast, in cecal volvulus, endoscopic treatment is usually less effective and is associated with a higher risk of perforation; therefore, early surgical management is generally the treatment of choice.⁴¹⁻⁴⁴

Conclusions

Several of the complications described may themselves be considered factors that perpetuate or aggravate the pathophysiology of chronic constipation. Timely recognition of these complications is essential for establishing appropriate management and preventing adverse outcomes.

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Conflicts of interest

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Ethical considerations

Protection of human and animal subjects. The author declares that no experiments were performed on humans or animals for this research.

Confidentiality, informed consent, and ethical approval. The study does not involve personal data, medical records, or human biological samples, and therefore does not require ethical approval. The SAGER guidelines do not apply.

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