

Pathophysiology of Anal Incontinence, Constipation, and Defecatory Dysfunction

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KEYWORDS

- Anal incontinence • Anorectal disorders • Constipation
- Defecatory dysfunction • Fecal incontinence

Anorectal dysfunction, including anal incontinence, constipation, and obstructive defecation, is common among adult women. The onset typically follows pregnancy and childbirth and becomes more common with increasing age. Women are frequently too embarrassed by their symptoms to bring them to the attention of their health care providers. Often, these providers have an inadequate understanding of diagnostic and therapeutic options.

Anorectal dysfunction may occur as the result of structural abnormalities (eg, anal sphincter rupture or rectal prolapse), or functional abnormalities (eg, constipation or irritable bowel syndrome), or both. In addition, bowel symptoms may coexist with other pelvic floor disorders, such as pelvic organ prolapse, urinary incontinence, or retention. Therefore, clinicians caring for women with pelvic floor disorders should possess an adequate understanding of these conditions, as early recognition and evaluation will facilitate care and appropriate referral in a timely manner.

ANAL INCONTINENCE

Anal incontinence refers to the involuntary loss of gas, liquid stool, or solid stool, and the symptoms of fecal urgency and soiling. In the literature, the terms *anal*

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incontinence and *fecal incontinence* are used interchangeably. Anal incontinence occurs more frequently than previously thought.¹⁻³ Recent studies have estimated that 7% to 16% of healthy adults will admit to incontinence of gas or feces.^{4,5} Two thirds of affected individuals are women, typically multiparous. Anal incontinence may affect up to 10% of women following an uncomplicated vaginal delivery. Anal incontinence is a significant burden in the geriatric population. In a survey of 249 female residents in three extended-care facilities in the Indianapolis area, 50% admitted to incontinence of stool.⁶ Similar to urinary incontinence, the emotional, psychological, and social problems created by this condition can be both devastating and debilitating.

The most common cause of anal incontinence in healthy women is currently believed to be obstetrical trauma. As many as 10% of all women may experience new defecatory symptoms following an uncomplicated vaginal delivery.⁷ The most common symptoms experienced postpartum are incontinence to flatus and fecal urgency. Symptoms are more common and more severe in women who suffered anal sphincter rupture (ie, third- or fourth-degree laceration) at the time of delivery. Damage to the anal continence mechanism at the time of vaginal delivery is thought to occur by either mechanical disruption of the anterior sphincter complex,⁸ or by damage to the innervation of the anal sphincters and pelvic floor muscles,⁹ or a combination of both.¹⁰ Recent studies have reported that injury to the anal continence mechanism occurs more commonly following a routine vaginal delivery than previously recognized. In a prospective study of 200 pregnant women evaluated both before and after delivery, Sultan and colleagues⁸ reported that 13% of women develop incontinence or urgency following their first vaginal delivery with 30% of all women having evidence of structural injury to the internal and external anal sphincter detected by anal endosonography postpartum. All women with symptoms of anal incontinence had structural defects and there was no correlation between nerve latency studies and the development of symptoms in this study, suggesting that mechanical disruption rather than neurologic injury is the most important cause for anal incontinence.

Women who suffered a traumatic rupture of the anal sphincter at the time of vaginal delivery also appear to have a greater risk of anal incontinence than previously recognized. Several investigators have reported that 36% to 63% of women develop symptoms of incontinence following primary sphincter repair.¹¹⁻¹⁴ Sultan and colleagues¹⁵ evaluated 50 women who had undergone a primary repair of a third-degree perineal laceration at the time of vaginal delivery. Half of the women in this study admitted to symptoms related to anal incontinence following delivery. Anal endosonography demonstrated that 85% of women had evidence of a persistent sphincter defect. The investigators concluded that primary sphincter repair may be inadequate in women who sustain a third-degree laceration and that most have residual sphincter defects. Symptomatology seemed to be related to the persistent mechanical defect rather than nerve injury in this study. Studies from other centers support these high rates of structural injury following vaginal delivery.^{16,17}

There is also strong evidence to suggest that vaginal delivery results in significant injury to the innervation of the pelvic floor muscles. Snooks¹⁸ noted a significant increase in the mean pudendal nerve motor latencies (PNTMLs) 48 hours after delivery in primiparous women who had a forceps delivery compared with controls and with multiparous patients. In a study of 128 women in whom PNTMLs were measured both during pregnancy and after delivery, PNTMLs were significantly prolonged 6 weeks postpartum in 32% of women who delivered vaginally.¹⁹ Two thirds of those women with an abnormally prolonged PNTML had a PNTML within the normal range

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