

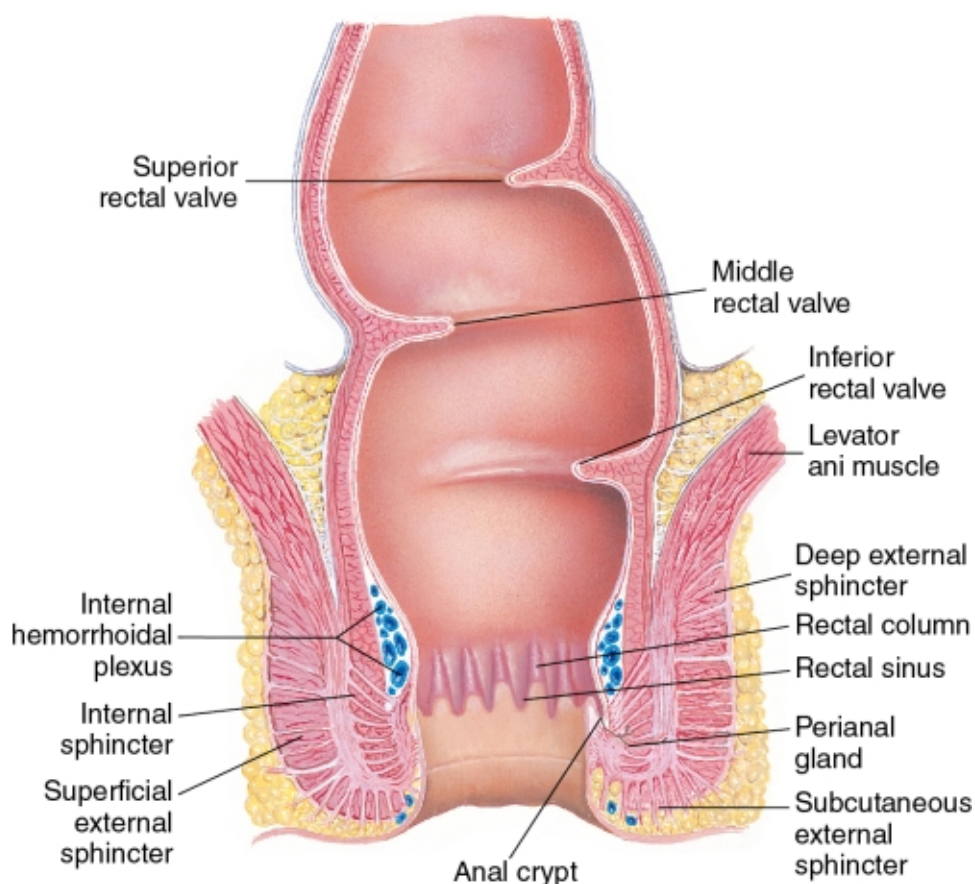
# Rectal pain, itching, and bleeding

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Anorectal problems can cause significant discomfort and anxiety. Because patients are often embarrassed by pain or problems in the anorectal area, they may delay seeking care and present with a more advanced disease or condition. Anorectal disorders can range from minor problems to those with significant morbidity. Rectal bleeding can be frightening for patients in every age group.

Rectal concerns include pain, irritation, discomfort, itching, soreness, discharge, and bleeding. Rectal tenesmus is painful sphincter contraction with an urgent desire to evacuate the bowels, or involuntary straining with ineffectual effort to defecate. The causes may be infectious or noninfectious. Rectal pain can be caused by tears, infection, or hemorrhoids. Itching can be caused by inflammation from hemorrhoids, parasites, or hypersensitivity to substances in the environment. Because colorectal cancer is common in adults and may be present with a benign condition, a high index of suspicion for cancer should be maintained when investigating all anorectal symptoms. See the [Evidence-Based Practice](#) box for screening recommendations for colorectal cancer.

The anatomy of the anorectal area is important in describing the occurrence of various disorders. The anus is the most distal portion of the gastrointestinal (GI) tract and is approximately 4 cm long. Whereas its distal end is lined by stratified squamous epithelium, the proximal component is lined by simple columnar epithelium. The two components are divided by the dentate line—the line where the distal end of the anal columns and the crypts of Morgagni meet. The dentate line, also known as the anorectal junction and pectinate line, denotes the boundary between the somatic (sensory) and the visceral nerve supply. Proximal to the dentate line, the rectum is supplied by stretch nerve fibers without pain nerve fibers. Below the dentate line, the area is extremely sensitive because it is supplied with pain nerve fibers. The columns of Morgagni are longitudinal columns of mucosa located in the proximal anus. These columns fuse in a ring distally to form the anal papillae at the level of the dentate line. The crypts are the invaginations of the columns of Morgagni. Anywhere from four to eight anal glands drain into the crypts of Morgagni at the level of the dentate line. Most rectal abscesses and fistulas originate in these glands. [Figure 29.1](#) shows the anatomy of the anus and rectum.



**FIGURE 29.1** Anatomy of the anus and rectum. Source: (From Ball JW, Dains JE, Flynn J, et al: *Seidel's guide to physical examination*, ed. 9, St. Louis, 2018, Elsevier.)

## Diagnostic reasoning: Focused history

### Might this condition require immediate hospitalization or referral?

#### Key Questions

- If the patient is bleeding: How much bleeding is there? Are there clots? Are you receiving anticoagulation therapy? Do you have a bleeding disorder?
- Is the patient an infant?
- Do you have HIV/AIDS?
- Are you on chemotherapy?
- Is there purulent discharge?

### Bleeding

A patient presenting with significant passage of clots, dark blood, or loose bloody stools needs urgent evaluation to rule out GI bleeding. Melena, blood that is black, tarry, and odorous from partial digestion of the blood, is from the upper GI tract. Melena stool is differentiated from dark stool by a positive guaiac test result. Melena can be seen in children with Meckel diverticulum, a congenital anomaly of the GI tract. When blood is bright red, the source is usually in the more distal GI tract or the rectum. Bleeding from the rectum is a red flag for colorectal cancer but could also represent bleeding hemorrhoids.

### Infant

Newborns with melena (black, tarry stool) or hematemesis may have a vitamin K deficiency. Newborns who have not received vitamin K and have a prolonged prothrombin time may have hemorrhagic disease of the newborn. Infants who present with rectal bleeding could have necrotizing enterocolitis (NEC), which is life threatening. All premature infants with lower GI bleeding must be referred and evaluated for NEC. Intussusception, which is also potentially life threatening, is seen in children younger than 1 year old and may cause currant jelly stool (see [Chapter 3](#)).

## Anticoagulation therapy or bleeding disorder

A patient with a coagulopathy or on anticoagulation therapy with a bleeding internal hemorrhoid may require hospitalization. Bleeding with diverticular disease can be massive and life threatening.

## Immunocompromised with an infection

A perirectal abscess in a person who is immunocompromised may necessitate hospitalization owing to the increased likelihood of the infection spreading systemically.

### What do the presenting symptoms tell me?

#### Key Questions

- If there is bleeding: When does it occur? Describe the color of the blood. Is the blood on the stool, in the toilet, or on the toilet paper? What color is the stool?
- If a child: How old is this patient?
- Do you have pain? When does it occur? Can you describe the pain?
- Specifically, do you have pain on defecation? If a child: Does the child cry on defecation?
- Do you have itching? When does it itch?
- Can you feel a lump?

- Have you had any stains on your underwear? Can you describe the stains (e.g., blood, stool, pus)?
- Do you have diarrhea or constipation?

## Bleeding

Anorectal bleeding is usually minor and self-limiting. The bleeding usually comes from internal hemorrhoid veins or from a tear in the anal canal. Excoriations of the perianal skin can also cause bleeding, as can eroded skin overlying a thrombosed external hemorrhoid. Bleeding associated with defecation is characteristic of hemorrhoids. Bleeding from hemorrhoids typically occurs after defecation and is noted on the toilet paper or coating the stool. The blood is bright red and may vary from a few spots on the toilet paper to a thin stream or coating on the stool (hematochezia). Painless hematochezia can also be a presentation of a diverticular bleed. A painful tearing pain with bright red blood during defecation can be indicative of an anal fissure. Spontaneous rectal bleeding can occur with proctitis. Condyloma acuminata may grow to a size sufficient to occlude the rectal opening and will bleed on defecation. Significant pathological conditions such as carcinomas and polyps can bleed intermittently. A loose stool that has bright red blood mixed with mucus may indicate chronic ulcerative colitis.

Some foods such as fruit juices and drinks, food coloring, and beets can make the stool appear reddish. Spinach, blueberries, and grape juice may darken the stool; iron supplementation may also make the stool appear dark. Guaiac testing will differentiate these colorings from blood.

## Age of the child with bleeding

### Newborns

The most common cause of blood in the stool is from swallowing maternal blood during delivery. Neonatal stress can cause gastritis and gastroduodenal ulceration. Another cause of neonatal rectal bleeding is gastroduodenal ulceration from sepsis.

### Infants younger than 6 months

Nonspecific colitis or allergic colitis caused by milk allergy can cause blood-streaked stool. Bleeding can also have a bacterial etiology (see [Chapter 12](#)). Occasionally, infants who are fed cow's milk protein develop rectal bleeding. After the diet is modified, the isolated bleeding resolves.

### Age 6 months to 5 years

Intussusception is seen in children younger than 1 year old and may cause currant jelly stool (see [Chapter 3](#)). Meckel diverticulum that ulcerates because of acid secretion onto the gastric mucosa can cause painless, sometimes significant, bleeding resulting in black or maroon stool. Henoch-Schönlein purpura may first manifest as lower GI bleeding (see [Chapter 12](#)).

Juvenile colonic polyps are seen in children ages 2 to 5 years. These are benign hamartomatous lesions. Bleeding occurs with defecation because of the sloughing of the polyps.

Anal tears resulting from constipation and stool holding can cause bleeding as well as pain. Blood may be visible on the stool or in the underwear (see [Chapter 10](#)).

### Age 5 to 18 years

Ulcerative colitis presents in children as acute bloody diarrhea, cramping, and tenesmus. The child may have skin lesions, arthralgia, and growth retardation. Crohn disease may present with bloody diarrhea, abdominal pain, and fever. In mild stages, rectal bleeding may be minor with only small amounts of blood. Blood increases with proximity of the lesion to the anus (see [Chapter 12](#)).

## Pain

Pain with defecation is characteristic of anal fissures. The pain may be so severe that the patient avoids defecating to avoid the pain. Children will cry with defecation. The pain may last for several hours and then subside until the next bowel movement. Patients with anal fissures complain of cutting or tearing anal pain during defecation and of gnawing, throbbing discomfort after defecation.

Hemorrhoids rarely cause severe pain unless they are ulcerated or thrombosed. Thrombosed hemorrhoids cause an inflammatory reaction by activating tissue thromboplastin within the blood vessels. Internal hemorrhoids, because they start above the dentate line, are not painful even if prolapsed or thrombosed.

Anorectal pain that begins gradually and becomes excruciating over a few days may indicate infection. A localized area of tenderness could signal an abscess. Patients with a rectal abscess or fistula experience a throbbing, continuous, progressive pain. Pain can also occur with proctitis as a result of the infectious and inflammatory processes. The pain is not limited to defecation.

Proctalgia fugax is a unique anal pain. This pain is usually caused by intense muscle spasms in or around the canal of the anus. Patients with proctalgia fugax experience severe episodes of spasm-like pain that often occur at night. Proctalgia fugax may occur only once a year or may be experienced in waves of three or four times a week. Each episode lasts only minutes.

## Tenesmus

Tenesmus is common with anal fissures, as the tear and inflammation involve the internal sphincter. On defecation, the sphincter may go into spasm. The patient experiences a tearing pain.

## Itching

Itching is common with both hemorrhoids and fissures. Both external hemorrhoids that are covered by skin and fissures that involve breaks in the skin stimulate cutaneous sensation and lead to pain and itching.

Intense itching is a hallmark of pruritus ani, which occurs from hypersensitivity caused by irritating soap, lubricants, fragrance, or dyes in toilet paper. Itching at night is a red flag for pinworms.

## Mass

The sensation of a mass or lump may indicate hemorrhoids, anal fissures, or a cancerous lesion. When the supportive tissues around the anal canal deteriorate, veins in the anorectal mucosa become tortuous and dilated and then bulge and descend into the anal canal. Both external and internal hemorrhoids can protrude and then regress spontaneously or be reduced manually. The patient may feel them as a bulge or lump.

With chronic anal fissures, the anal papillae hypertrophy and a skin tag (“sentinel pile”) may form, which the patient may feel as a mass or lump.

Condyloma, molluscum contagiosum, and malignant lesions can also produce the sensation of a lump or mass.

## Fecal soiling

Fecal soiling is common with hemorrhoids. Mucous discharge with internal hemorrhoids is less common. Fecal soiling can occur with chronic constipation in children and older adults. Some stool discharges around the feces that is stationary in the rectum.

## Diarrhea

Explosive diarrhea can be a contributing cause of anal fissures. Diarrhea can also cause irritation and excoriation, producing symptoms of itching, bleeding, and soreness.

## Constipation

Constipation can be a cause or result of anal fissures. Hard, dry stool can tear the rectal mucosa and produce an anal fissure. The pain associated with defecation because of a fissure may result in constipation because the patient avoids defecating.

### Could this be caused by sexual practices?

#### Key Questions

- How many sexual partners do you have?
- Do your sexual practices include anal intercourse?
- Do you insert any objects into your rectum?

## **Multiple sexual partners**

Multiple sexual partners place a person at risk for development of condyloma acuminata and viral or bacterial proctitis. HIV infection is possible and places the individual at risk for development of proctitis.

## **Anal intercourse**

Anal intercourse predisposes individuals to anal fissures as a result of rectal trauma. The transmission of bacterial or viral organisms can result in condyloma acuminata or proctitis.

## Foreign bodies

The insertion of objects into the rectum can cause anal tears and fissures.

### Could this be the result of sexual abuse?

#### Key Questions

- Have you had unwanted sexual contact? To a child, you might ask, “Has anyone touched your private parts?”
- Do you think the child has been abused?

## Sexual contact

Unwanted sexual contact that includes anal contact or intercourse may cause anal fissures as a result of rectal trauma. The transmission of bacterial or viral organisms can result in development of condyloma acuminata or proctitis. Older adults who are cognitively impaired or otherwise dependent for care are at risk for sexual abuse.

## A child’s reporting

Children who have been abused may try to disclose the abuse in some way. Subtle indications that are not proof but may indicate abuse include a preschooler’s regression to behavior associated with earlier, safer times such as thumb sucking, clinging, bedwetting, fear of sleeping in one’s own room, and expressing feelings through art, especially drawing. Children draw what they see. Ask the child to talk about what he or she has drawn. School-age children may develop physical symptoms from abuse (e.g., sore throat, stomach pains). The child’s play may portray intercourse and may include violence. Some children may portray sexual behaviors that are inconsistent with their developmental level. The child may appear to lack concentration, but in fact, all energy is being focused into keeping a secret. Some children overcompensate, such as by getting straight As, so that no one will suspect. Failure to thrive and undereating are other behaviors that may raise suspicion of abuse.

## A parent’s reporting

When a stranger sexually assaults a child, most parents bring the child into an emergency facility or clinic for immediate investigation. Abuse by a friend or family member is less overt and is often detected only when a primary care provider is alert to a suspicious history or physical findings. In some cases, a parent may voice concerns about the possibility of abuse or report that the child has told them of the incident.

A child who has been sexually abused must be referred to Child Protective Services and to a health care provider who is an expert in this area.

### Do risk factors point to a likely condition?

#### Key Questions

- Do you strain to have a bowel movement?
- How often do you move your bowels? How often do you experience constipation? Is your stool hard and dry?
- What is your occupation? Does it require sitting for long periods?
- Can you describe your personal hygiene practices?
- How many pregnancies and deliveries have you had? Were the deliveries vaginal? How much tissue trauma did you have?
- Do you have HIV/AIDS?
- Are you on chemotherapy?
- Do you have diabetes?
- Do you have a personal or family history of familial adenomatous polyposis (FAP), hereditary nonpolyposis colon cancer (HNPCC), or colon polyps?
- Do you have inflammatory bowel disease?
- Do you have diverticulosis?

## Straining

Straining during bowel movements predisposes individuals to development of hemorrhoids and anal fissures, especially in the presence of chronic constipation. Hemorrhoids develop secondary to the pressure. Fissures develop as a result of traumatic laceration from a hard or large stool.

## Chronic constipation

Chronic constipation predisposes an individual to hemorrhoids and anal fissures as a result of straining.

## Prolonged sitting

Occupations that require prolonged periods of sitting predispose people to the development of hemorrhoids, pruritus ani, and pilonidal cysts.

## Hygiene

Inadequate hygiene practices are a risk factor for development of pruritus ani and pinworms. Improper cleaning can result in excessive moisture around the canal, which causes breakdown of the epidermal layer of skin. Organisms and parasites can then invade the damaged skin.

Another risk factor in the development of pruritus ani is overzealous cleansing. Pruritus ani can result from excessive use of soaps containing chemical irritants or from excessive rubbing.

## Pregnancy and childbirth

The increased pressure and trauma from pregnancy and childbirth predispose to development of hemorrhoids.

## HIV, chemotherapy, and diabetes mellitus

Immunocompromised individuals are at greater risk for proctitis. Herpes simplex infection is common in immunocompromised individuals. Diabetes mellitus places the individual at risk for development of pruritus ani with secondary yeast infections.

## History of colon polyps

Adenomatous colon polyps in the patient or in first-degree relatives places the patient at higher risk for developing colorectal cancer.

## History of hereditary colon cancer syndrome

Familial adenomatous polyposis or HNPCC in family members places the patient at risk for inheriting the gene mutations that lead to colon cancer. Patients with a mutation for FAP have a 100% chance of developing colorectal cancer in their lifetime. Patients with a mutation for HNPCC have an 80% chance of developing colorectal cancer.

## Inflammatory bowel disease

Patients with ulcerative colitis or Crohn disease are at higher risk for developing colorectal cancer and proctitis.

## Diverticulosis

In diverticulosis, erosion of blood vessels at the site of the diverticulum can cause GI bleeding.

## Diagnostic reasoning: Focused physical examination

### Obtain vital signs

Infants who present with rectal bleeding should first be assessed to determine if they are hemodynamically stable. Children have a smaller blood volume, which makes blood loss more significant. Children maintain



blood pressure with tachycardia and vasoconstriction, and when this compensation is exhausted, severe shock develops rapidly.

## **Palpate the abdomen**

Patients with diverticular disease may have abdominal tenderness, typically in the left lower quadrant, which may be accompanied by localized guarding or rebound tenderness. A sausage-shaped mass may be felt in the abdomen of a child with intussusception.

## **Inspect the perirectal area and anus**

Look for scars, warts, petechiae, bruising, fissures, and skin tags. Skin tags and fissures may cause painful defecation, as can skin excoriation, strictures, tears, or hemorrhoids. Midline skin tags immediately anterior to the anus that have been present from birth are seen in some children. Skin tags may also develop when tears or hemorrhoidal bleeding resolves. Hemorrhoids are very uncommon in children, and their presence should heighten suspicion of sexual abuse. Perirectal erythema is common with streptococcal cellulitis, and you may occasionally see vesicles surrounding the anus. Perianal ulceration sometimes can be seen with Crohn disease.

The knee–chest position affords the best visualization in both adults and children. A side-lying position can also be used. Spread the buttocks to reveal the mucocutaneous

junction of the anus and carefully inspect the rectum first in the resting position and then as the patient bears down. As the patient bears down, an additional 1 to 2 cm of anorectal tissue is visible.

Look for inflammation, swelling, and erythema that characterize inflammation or infection. These signs may be present with a fissure, fistula, abscess, or proctitis.

Note any lesions or discharge. Condyloma acuminata present as warty growths that are pink or white with a papilliform surface. In the anal region, they tend to grow in radial rows around the anal orifice, forming a confluent mass that can obscure the anal opening. Examination of the entire genital region, including the anal canal, is important because they can extend 1 or 2 cm above the dentate line. Purulent discharge may be present with proctitis or an infected fissure or fistula. An external mass, verrucous growths, polyps, or ulcers may indicate malignancy.

Look carefully around the periphery to see small longitudinal ulcers or tears that characterize anal fissures. Early fissures have the appearance of superficial erosions. More advanced lesions are linear or elliptical breaks in the skin. Long-standing fissures are deep and indurated. Internal fissures are seen when the anal sphincter relaxes as the examining finger is withdrawn. A sentinel tag may be visible.

External hemorrhoids, if present, will be visible as bluish swellings. Internal hemorrhoids may or may not become visible as the patient bears down. A thrombosed hemorrhoid appears as a purple elliptical mass.

## Perform a digital rectal examination

A thorough, gentle digital rectal examination (DRE) is essential. Palpate for tenderness. Hemorrhoids are generally not tender unless thrombosed. Pain from an abscess, fissure, or fistula may preclude digital examination.

Palpate for the presence of a mass. Masses from anal or colorectal cancer are usually painless and may be so soft that they are easily missed on palpation.

Feel for foreign bodies, which might be present as the result of insertion of objects. Foreign bodies can also be present as a result of ingestion; for example, children may swallow chicken bones or small objects.

## Perform anoscopy if indicated

Anoscopy is essential in the evaluation of all patients with rectal pain. It enables a view of the immediate internal anal canal that is not possible on manual DRE. A warmed and lubricated handheld anoscope is eased slowly into the anus while the patient bears down to relax the external sphincter. A light source, preferably a headlamp, is necessary. Anoscopy may not be possible initially in patients with a fissure or abscess because of the pain. However, it should be performed on a follow-up visit to detect inflammatory bowel disorder or rectal cancer.

## Laboratory and diagnostic studies

### Fecal occult blood testing

Fecal occult blood testing (FOBT) should be performed on all patients with rectal pain. A positive test result indicates blood in the stool that may be the result of benign conditions such as hemorrhoids or fissures or from ulcerative or malignant lesions. The sensitivity of this test in detecting colorectal cancers and adenomas ranges from 50% to 90%. It is an inexpensive and noninvasive method to screen for bleeding lesions. Serial testing (three samples) can be performed through the use of stool cards at home that are returned by mail for analysis.

### Fecal immunochemical test

Also called immunochemical FOBT, the fecal immunochemical test (FIT) uses antibodies to human globin to detect a specific portion of a human blood protein. FIT does not react with nonhuman hemoglobin or peroxidase, so food restrictions before the test are not necessary. Immunochemical FOBTs are also more specific for lower GI tract bleeding because they target the globin portion of hemoglobin, which does not survive passage through the upper GI tract. This test is done essentially the same way as conventional FOBT but is more specific and reduces the number of false-positive results. Vitamins and foods do not affect the FIT, and some forms require only one or two stool specimens.

## Fecal or stool DNA

Cells from precancerous polyps and cancerous tumors are shed in the stool and contain recognizable DNA markers. A stool DNA test can identify several of these markers, indicating the presence of precancerous polyps or colon cancer.

## Abdominal radiography

An abdominal flat plate and either upright or cross-table lateral radiography is done to screen for intestinal obstruction or pneumatosis intestinalis (see [Chapter 40](#)).

## Colonoscopy

Colonoscopy should be performed for unexplained rectal bleeding and when inflammatory bowel disease, polyps, carcinoma, or diverticular disease is suspected. Screening colonoscopy is particularly important for adult patients older than 50 years and for those with a history of FAP, HNPCC, colon polyps, or inflammatory bowel disease.

## Computed tomography

Computed tomography can be useful for evaluating suspected perianal abscesses and inflammation.

## Gram stain rectal discharge

Place a smear of rectal discharge on a glass slide for Gram staining. Gram-positive organisms stain purple, and gram-negative organisms stain red. *Neisseria gonorrhoeae*, a common cause of rectal discharge in proctitis, is a gram-negative organism.

## Cultures for infectious organisms

When discharge or lesions are present, collect a specimen to culture for *Neisseria gonorrhoeae* and herpes simplex virus (HSV). Collect the specimen on a sterile swab and place in the medium provided. Bacterial culture confirms the identity of the causative organism and its sensitivity to antibiotics. A swab specimen of the perianal cellulitis usually yields a heavy growth of group A streptococcus. Viral culture is also used for the diagnosis of HSV. Results may take from 1 to 7 days, with maximum sensitivity achieved at 5 to 7 days. The HSV culture probably will not identify the causative agent if the specimen is taken from a lesion that is 5 or more days old.

## Molecular testing for infectious organisms

Molecular testing using a sample of the rectal discharge provides rapid, sensitive, and specific results. Tests include DNA probes, nucleic acid amplification tests, and polymerase chain reaction assays. Tests are available for *Chlamydia trachomatis*, *N. gonorrhoeae*, herpes virus, and other organisms.

## Herpes virus antigen detection test

This test detects antigens on the surface of cells infected with the herpes virus. Cells from a fresh sore are scraped off and then smeared onto a microscope slide. This test may be done in addition to or in place of a viral culture.



## EVIDENCE-BASED PRACTICE

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### When Should Screening for Colorectal Cancer Stop?

The US Preventive Services Task Force (USPSTF) recommends routine screening for colorectal cancer in adults age 50 to 75 years (A recommendation). However, the task force gives a C recommendation for screening adults between 76 and 85 years, taking into account the patient's overall health and prior screening history. The Task Force concludes that the net benefit of screening for colorectal cancer in adults aged 76 to 85 years who have been previously screened is small and that adults who have never been

screened are more likely to benefit. The USPSTF does not recommend routine screening for colorectal cancer in adults 86 years and older. In this age group, competing causes of mortality preclude a mortality benefit that would outweigh the harms.

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Reference: United States Preventive Services Task Force, 2016.

## Testing for syphilis

Serologic tests are used for screening and diagnosing syphilis and are recommended if other sexually transmitted infections (STIs) are found or suspected. The screening tests are nontreponemal and include Venereal Disease Research Laboratory, rapid plasma reagin, and enzyme immunoassay tests. Diagnostic tests are *Treponema pallidum*-specific and include fluorescent treponemal-antibody absorption test and *T. pallidum* particle agglutination assay. Detection of *T. pallidum* can also be done using DNA testing.

## Alum-precipitated toxoid test

The alum-precipitated toxoid (APT) test is performed to identify maternal blood ingestion in newborns. The neonate's gastric contents are mixed with 1% sodium hydroxide. A brown or rusty color indicates that the infant swallowed maternal blood.

## Meckel (technetium-99m) scan

To confirm Meckel diverticulum, a nuclear substance, technetium-99m pertechnetate, is administered intravenously and the patient is scanned to identify ectopic gastric mucosa on diverticula. This is the hallmark of Meckel diverticulum.

## Microscopic examination of stool

Stool examination should be considered in patients with symptoms of enterocolitis to rule out infection from common causes. Fecal leukocyte detection is an easy and inexpensive test that is 75% specific for bacterial diarrhea. Leukocytes are found in inflammatory diarrheal disease and are present in bacterial infections that invade the intestinal wall (*Escherichia coli*, *Shigella* spp., and *Salmonella* spp.). Microscopic white blood cells and red blood cells indicate the presence of *Shigella*, enterohemorrhagic *E. coli*, enteropathogenic *E. coli*, *Campylobacter* spp., *Clostridium difficile*, or other inflammatory or invasive diarrhea. Leukocytes are also present in diarrhea from ulcerative colitis and Crohn disease, as well as antibiotic-related diarrhea. They are not seen in viral gastroenteritis, parasitic diarrhea, *Salmonella* carrier states, or enterotoxigenic bacterial diarrheas. Obtain a small fleck of mucus or stool. Do not allow the specimen to dry. Place the specimen on a slide with two drops of Löffler alkaline methylene blue stain and wait 2 minutes before viewing under the microscope.

## Stool for ova and parasites

Stool examination for ova and parasites should also be considered in patients with symptoms of enterocolitis and in those who have been traveling and have blood in their stool. Fresh stool is required to preserve the trophozoites of some parasites. Use this test in patients with symptoms of diarrhea to rule out infection from *Campylobacter*, *Shigella*, *Giardia*, and *Cryptosporidium* spp. and *Entamoeba histolytica*. Usually three serial samples are obtained.

## Scotch tape test

Use this test when you suspect pinworms, which occur most commonly in children. Instruct the adult to apply clear adhesive cellophane tape to the child's perianal region early in the morning on awakening and bring in the tape. Place it on a glass slide and examine under a microscope for the presence of eggs. Parents may also be able to see the worms in the external anus of the child at night with a flashlight. A female worm is about 10 mm long.

## Differential diagnosis

### Pain

#### Anal fissure

Anal fissures are longitudinal ulcers that extend from just below the dentate line to the anal verge. They occur most often in the posterior midline. Acute fissures are cracks in the epithelium, but chronic fissures may result

in the formation of a skin tag at the outermost edge that is visible on examination. In the chronic stage, fissures can suppurate and extend into the surrounding tissue, causing perirectal abscess.

Patients with anal fissures complain of cutting or tearing anal pain during defecation and of gnawing, throbbing discomfort after defecation. Digital and visual examinations reveal the presence of the fissure. Early fissures have the appearance of superficial erosions. More advanced lesions are linear or elliptical breaks in the skin. Long-standing fissures are deep and indurated. Internal fissures are seen when the anal sphincter relaxes as the examining finger is withdrawn. A sentinel tag may be visible at the anal verge.

Risk factors for the development of fissures include straining at stool, chronic constipation, and anal intercourse. Anal fissures are the most common cause of constipation and bright red rectal bleeding in children up to 2 years old.



## EVIDENCE-BASED PRACTICE

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### How Effective Is Nonsurgical Therapy for Anal Fissure?

In this Cochrane review of 75 randomized controlled trials, 17 nonsurgical agents were evaluated for their ability to relax the anal smooth muscle and heal fissures in adults and children. In children with acute and chronic anal fissure, medical therapy with topical nitroglycerin, botulinum toxin injection, or topical calcium channel blockers nifedipine or diltiazem was marginally better than placebo. For chronic fissure in adults, all medical therapies were far less effective than surgery. The authors conclude that a few of the newer agents investigated (clove oil, sildenafil, and a “healer cream”) show promise based only on single studies but lack comparison to more established medications.

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Reference: Nelson et al, 2012.

### Perirectal abscess or fistula

The most common source of infection is the anal glands, located at the base of the anal crypts at the level of the dentate line. Infection may also result from fissures, Crohn disease, trauma, or anal surgery.

Acute infection presents as an abscess, and chronic infection results in a fistula. The patient complains of swelling, throbbing, and continuous progressive pain. On examination, erythema and swelling in the perirectal region of ischioanal fossa are found. Pain may preclude examination.

### Proctalgia fugax

Proctalgia fugax is fleeting pain in the anus. It is sudden and severe, lasting several seconds or minutes and then disappearing completely. The spasmlike pain often occurs at night. Proctalgia fugax may occur only once a year or may be experienced in waves of three or four times a week. Each episode is transient, but the pain is excruciating and may be accompanied by sweating, pallor, and tachycardia. The patient has an urgency to defecate yet does not pass stool. No specific cause has been found, but proctalgia fugax may be associated with spastic contractions of the rectum or the muscular pelvic floor in irritable bowel syndrome. A few patients report attacks after sexual activity. Other unproven associations are food allergies, especially to artificial sweeteners or caffeine.

### Proctitis or proctocolitis

Anorectal infection is common in individuals who engage in anal intercourse, both heterosexuals and homosexuals. Most causes of proctitis are sexually transmitted through the anal sphincter via direct invasion of the infectious agent through the mucous membrane.

Proctitis is characterized by anorectal pain, mucopurulent or bloody discharge, tenesmus, and constipation. Proctitis from an STI may be associated with intense pain. On examination, inflamed mucopurulent mucosa is present. The most common pathogens are *N. gonorrhoeae*, Chlamydia, *T. pallidum*, and herpes virus. Herpes simplex infection can occur above or below the anal sphincter and is common in immunocompromised individuals. Proctitis can also occur in patients with ulcerative colitis and Crohn disease or with

patients who have an intact rectum with a colostomy or ileostomy in place. Immunocompromised patients are at greater risk for proctitis.

Proctocolitis implies involvement beyond the rectum to include the sigmoid colon. The causes may be the same as those of proctitis but are usually caused by *Shigella*, *Campylobacter*, or *Giardia* spp. Symptoms of proctocolitis may be the same as those of proctitis but may also include diarrhea, fever, and abdominal cramping. On examination, an inflamed mucopurulent rectal mucosa is visible. Gram stain, serology to rule out syphilis, cultures, and molecular testing for infectious organisms assist in diagnosis.

### **Pilonidal disease**

Pilonidal disease refers to an abscess or draining sinus that occurs from subcutaneous infection in the sacrococcygeal area. Hairs that penetrate the subcutaneous tissue instigate a foreign body reaction and initiate formation of a cyst or a sinus. Infection by skin organisms occurs, causing rupture of the sinus into the surrounding adipose tissue. The most common manifestation of pilonidal disease is a painful fluctuant mass in the sacrococcygeal region. Pilonidal disease may present as an abscess, as an acute, recurrent, or chronic pilonidal sinus, or as a perianal pilonidal sinus. Pilonidal disease occurs most often in hirsute young men. Risk factors include a sedentary lifestyle, prolonged sitting, obesity, poor hygiene, and increased sweating.

### **Perianal streptococcal cellulitis**

Separation of the buttocks reveals erythema and, occasionally, vesicles surrounding the anus. The patient usually has a history of group A  $\beta$ -hemolytic streptococcal infection. Pain, erythema, proctitis, and blood-streaked stool are common.

## **Itching**

### **Pruritus ani**

Pruritus ani is a symptom complex consisting of discomfort and itching. It is most often idiopathic. Discomfort is exacerbated by friction or a warm, moist perineal environment. Poor anal hygiene or, conversely, overcleansing is often a contributing factor.

Examination may reveal mild erythema and excoriation of the perirectal skin. In later stages, the skin may be red, raw, and oozing or pale and lichenified with exaggerated skin markings.

### **Pinworms**

Pinworms are nematodes that infect the intestine and cause perianal irritation. The pinworm eggs are ingested and migrate to the duodenum, where they hatch and mature and then travel to the cecum. The adult females emerge at night through the anus, deposit eggs in the perianal region, and die. The eggs stick to the skin and cause perianal pruritus and scratching. The worms may be visible at night, and the ova may be visible under the microscope.

## **Bleeding**

### **Hemorrhoids**

Hemorrhoids are dilated veins located beneath the lining of the anal canal. Internal hemorrhoids are located in the upper anal canal proximal to the dentate line and are covered by rectal mucosa and supported by longitudinal muscle fibers. Internal hemorrhoids are graded by size ([Table 29.1](#)). External hemorrhoids are located in the lower anal canal distal to the dentate line and covered by skin, but they lack muscle support.

**Table 29.1****Classification of Internal Hemorrhoids**

GRADE	DESCRIPTION	SYMPTOMS
1	No prolapse	Minimal bleeding or discomfort
2	Prolapse with straining, reduce spontaneously	Bleeding, aching, pruritus when prolapsed
3	Prolapse with straining, require manual reduction	Bleeding, aching, pruritus when prolapsed
4	Cannot be reduced, or manual reduction ineffective	Bleeding, aching, pruritus when prolapsed

Modified from Metcalf A: Anorectal disorders: Five common causes of pain, itching, and bleeding. *Postgrad Med* 98:81, 1995.

Bleeding from hemorrhoids is usually painless; the blood is bright red and varies in quantity from a few drops coating the stool to a spattering at the end of defecation. Patients also report a dull aching and itching with prolapse. Itching occurs with chronic prolapse of internal hemorrhoids.

External hemorrhoids can also cause itching but produce pain only when they become thrombosed. With thrombosis, patients report an acute onset of constant burning and throbbing pain and a new rectal lump. A thrombosed external hemorrhoid is an easily visible, purple, elliptical mass that is painful to palpation.

External hemorrhoids are visible on examination as bluish skin-covered lumps at the anal verge. Internal hemorrhoids may become visible when the patient bears down. Risk factors for the development of hemorrhoids include pregnancy, childbirth, straining during defecation, and occupations requiring prolonged sitting.

### Diverticular disease

Painless hematochezia is the typical presentation of diverticular bleeding. In most patients with minor bleeding, it is self-limited; however, if the bleeding is massive, it could be life threatening. The bleeding is usually painless except for mild abdominal discomfort and cramping caused by colonic spasm from intraluminal blood. Risk factors for diverticular bleeding include aspirin and nonsteroidal antiinflammatory drug use and a low-fiber diet. Diagnosis is made with colonoscopy.

### Condyloma acuminata

Genital warts are a common STI caused by the human papillomavirus. Patients with small lesions usually have few symptoms. When the lesions become large, patients experience bleeding, discharge, itching, and pain. On examination, warts are pink or white with a papilliform surface. They may obscure the anal opening. Examination of the entire genital region, including the anal canal, is important because the warts can extend 1 or 2 cm above the dentate line.

### Colorectal cancer

Anal or colorectal cancer can cause many different symptoms or be an incidental finding on rectal examination. Pain is usually absent, and rectal bleeding is inconsistent. The patient may have the sensation of a mass or lump. An external or internal mass may be palpable. Some lesions are so soft that they are missed on palpation. Anal cancer can take several forms, such as ulcers, polyps, and verrucous growths.

### Ingestion of maternal blood

Newborns may swallow water and maternal blood, and this can appear as upper GI bleeding. To differentiate maternal blood from the newborn's blood, perform an APT test. Fetal blood remains pink, whereas maternal blood turns yellow-brown. Diagnosis is best made with an APT test.

### Allergic colitis

Allergic colitis of infancy is a diagnosis of exclusion. It is seen in infants 3 weeks to 10 months old. The infant presents with loose bowel movements that are streaked with blood and mucus but is otherwise healthy with normal growth. History may show early introduction of milk or a recent episode of gastroenteritis. Laboratory studies are performed to rule out other causes such as diarrheal disease and include stool studies for leukocytes,



culture, eosinophils, and complete blood cell count. All milk and soy products are eliminated from the infant's diet. If the mother is breastfeeding, milk and soy products are eliminated from her diet. The infant generally outgrows the problem by the age of 1 year.

### **Necrotizing enterocolitis**

This bowel inflammation may involve only the innermost lining or the entire thickness of the bowel and varying lengths of the bowel. It is seen in premature infants who have fragile and immature colons, but it may also be seen in full-term newborns. The usual presentation may include abdominal distention, lethargy, and bloody stool; however, the signs range from feeding intolerance to sepsis. **This is a life-threatening condition and needs immediate referral.**

### **Meckel diverticulum**

Meckel diverticulum is a congenital abnormality that affects approximately 2% of the population, most of whom are asymptomatic. The diverticulum is thought to be what is left of the fetus's umbilical cord and intestines that were not fully reabsorbed and may contain gastric or pancreatic tissue. Painless rectal bleeding is the usual chief complaint in symptomatic cases in children younger than 2 years.

### **Intussusception**

Intussusception is a telescoping of the intestines. It occurs most commonly in infants between 5 and 9 months of age. The infant experiences severe colicky pain. The child may become pale and limp, and then after the attack, which usually lasts for a few minutes, he or she calms down and appears well. The child may vomit. The stool may contain blood and mucus typically described as currant jelly in appearance. **Emergent intervention is necessary to prevent strangulation of the bowel.**

### **Juvenile polyps**

Benign inflammatory polyps of the colon are found in children between the ages of 2 and 8 years. The patient experiences painless bleeding that occurs during or immediately after defecation. There is no risk of malignancy from these polyps. Colonoscopy is used to diagnose the condition.



## DIFFERENTIAL DIAGNOSIS OF *Common Causes of Rectal Pain, Itching, and Bleeding*

CONDITION	HISTORY	PHYSICAL FINDINGS	DIAGNOSTIC STUDIES
<b>PAIN</b>			
Anal fissure	Cutting or tearing pain during defecation and gnawing, throbbing discomfort afterward	Early fissures appear as superficial erosions; more advanced lesions are linear or elliptical breaks in skin; long-standing fissures are deep and indurated; internal fissures are seen when anal sphincter relaxes as examining finger is withdrawn; sentinel tag may be visible at anal verge	Anoscopy
Perirectal abscess	Swelling, throbbing, continuous progressive pain	Erythema and swelling in perirectal area; pain may preclude examination	Anoscopy, CT scan
Proctalgia fugax	Sudden, severe, transient pain in rectum often occurring at night; may be accompanied by sweating, pallor, tachycardia; may occur once a year or in waves of 3–4 times/wk	Normal rectal examination findings	Diagnosed by clinical history and negative physical examination findings
Proctitis or proctocolitis	Anorectal pain; mucopurulent discharge, tenesmus, constipation with proctitis; also diarrhea, abdominal pain, and fever with proctocolitis; history of anal intercourse, immunocompromised	Purulent discharge, inflamed mucopurulent rectal mucosa	Cultures, DNA testing, Gram stain, syphilis testing; stool examination, stool O&P
Pilonidal disease	Pain in sacrum, superior to rectum; history of sedentary occupation	Erythema, swelling over sacrum, which can be fluctuant	None
Perianal streptococcal cellulitis	History of GABHS, local itching, pain	Erythema, proctitis, blood-streaked stool	Culture of perianal area
Sexual abuse	History of abuse, perianal pain, itching	Large irregular anal fissures, bruising, rectal tone decreased, warts, presence of semen	Syphilis testing; culture (gonorrhea, <i>Trichomonas vaginalis</i> , herpes); molecular testing, (herpes, Chlamydia,

CONDITION	HISTORY	PHYSICAL FINDINGS	DIAGNOSTIC STUDIES
			gonorrhea)HIV testing
<b>ITCHING</b>			
Pruritus ani	Discomfort and itching exacerbated by friction; history of poor anal hygiene or overcleansing	Mild erythema and excoriation over perirectal skin; in later stages red, raw, oozing, pale, lichenified perirectal skin	None
Pinworms	Itching, especially at night	Use flashlight to visualize white-yellow worms 8–13 mm long at night	Scotch tape test positive for eggs
<b>BLEEDING</b>			
Hemorrhoids			

	Bright red rectal bleeding with defecation or blood on stool; burning or itching; straining at stool; prolonged sitting; pregnancy and childbirth	External hemorrhoids: bluish, skin-covered lumps; internal hemorrhoids: may be visible when patient bears down	FOBT or FIT; colonoscopy, fecal or stool DNA to exclude carcinoma
Diverticular disease	Painless hematochezia; may have mild abdominal discomfort and cramping often in LLQ; use of aspirin and NSAIDs and a low-fiber diet	Brisk rectal bleeding; red, or black stool	Colonoscopy
Condyloma acuminata	Few symptoms with small lesions; bleeding, discharge, itching, and pain with large lesions	Pink or white warty lesions with papilliform surface; may extend into anal canal	Syphilis testing to distinguish from condyloma lata caused by syphilis
Cancer of the colon, rectum, anus	Feeling of lump; usually painless; may or may not bleed; may have family or personal history of polyps or colorectal cancer syndromes	Polyp, internal or external mass, ulcers, verrucous growths	Colonoscopy
Ingestion of maternal blood	Newborn	Hematemesis	APT test
Allergic colitis	Infant 0–6 mo, milk formula or breastfeeding mother who has intake of milk	Blood-streaked stool	None
NEC	Preterm newborn, infant	Ileus, abdominal distention, GI bleeding, bilious vomiting	Immediate referral
Meckel diverticulum	Preschool child, painless GI bleeding	Black or maroon stool	Technetium-99m scan and referral
Intussusception	Colicky abdominal pain, vomiting, currant jelly stool	Sausage-shaped mass may be felt in abdomen	Refer
Juvenile polyps	Painless bleeding with stool, ages 2–5 yr	None	Colonoscopy

*APT*, alum-precipitated toxoid; *CT*, computed tomography; *FIT*, fecal immunochemical test; *FOBT*, fecal occult blood testing; *GABHS*, group A  $\beta$ -hemolytic streptococcal infection; *GI*, gastrointestinal; *LLQ*, left lower quadrant; *NEC*, necrotizing enterocolitis; *NSAID*, nonsteroidal antiinflammatory drug; *O&P*, ova and parasites.