

Fissure-in-Ano and Treatment

Written By:

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FISSURE PHYSIOLOGY:

A fissure is a tear of the skin at the edge of the anus. It is very similar to both a paper cut on your finger or a split lip. If you cut your finger the immediate response is to squeeze the finger with your other hand for a few minutes until the pain minimizes. You don't continue to squeeze your finger as it would increase the pain. Another analogy is a split lip. Think about the last time you tried to bite into a sandwich that was too big. After you opened your mouth as wide as you could, the side of your lip split open. At that moment you knew you cut your lip and immediately pursed your lips and put the back of your hand to your mouth to hold pressure. When you looked at your hand you noticed a little blood. Over time you stop pursing your lips and relax your mouth. An anal fissure is exactly the same thing. The skin around the anus splits causing a sharp or burning pain and bleeding. The blood can be seen on the toilet paper or it can drip into the bowl. Due to the increased vascularity of the anus the bleeding can be impressive but almost always stops after a few minutes. Fissures can be acute (new) or chronic (persistent). An acute fissure has an 80% chance of healing. When a fissure lasts over 6 weeks it is considered chronic and has less than a 60% chance of healing. Chronic fissures are usually associated with a tag at the outside edge of the anus (sentinel pile) and a tag inside the anus (hypertrophied anal papillae). These tags, when seen by the examining physician are indicators that the fissure is chronic and has less of a chance of healing.

FISSURE DEVELOPMENT:

The pathophysiology of the anus is very complicated but I will try to explain it as best as I can. Like the mouth, the anus is surrounded by skin and muscle. The anal muscles are called sphincters. There are 2 types of anal muscles; the external and the internal anal sphincters. The external sphincter is the one that you have control over. It is in a state of relaxation until you feel the urge to fart while you happen to be on a crowded elevator. It is this muscle that you squeeze as hard as you can to prevent the embarrassment that will reign over you if you let the gas out! On the other hand, you have no control of the internal anal sphincter which is in a state of contraction at all times (unless you are trying to have a bowel movement). The internal anal sphincter squeezes tight at all times in order to prevent stool from leaking out of the anus. Obviously this is an important function!

Usually after a constipated bowel movement, or a bout of diarrhea, the skin can split causing pain and bleeding. The pain reflexively causes the internal and the external sphincters to contract (squeeze) very tight. You will eventually relax the external sphincter as you have control over this muscle complex. Unfortunately, the internal sphincters don't know how to relax and remain very tight. It is this hyperactive squeezing that makes the pain relentless and makes it difficult for the cut to heal. The internal anal sphincter spasm causes increased pressure and tension which is the cause of the persistent pain (see graph 1) and prevents the fissure from healing (see graph 2). Think about the split lip analogy. Remember that as soon as the lip splits you purse your lips and put pressure on the cut with your hand. This is the typical reflex for any kind of pain. Over a few minutes you relax your lips and remove your hand. Because the mouth remains relaxed it allows the cut to heal more quickly. The same analogy is true for the paper cut. The first reaction is to squeeze the cut finger with the other hand. You don't continue to squeeze the cut as it will hurt more. In fact, if someone tries to shake your hand and your finger is cut you will try to avoid the squeeze because it hurts! Remember, the internal anal sphincter does not know how to relax and therefore continuously squeezes the cut causing more pain. Interestingly many patients will complain that the pain starts 20 minutes after the bowel movement and not during the bowel movement. This is because the only time the internal anal sphincter relaxes is during a bowel movement (the body is smart, it knows you have to get the stool out so it relaxes the muscles when you sit on the toilet making it easier to have a bowel movement). After all of the stool passes through the anus, the internal sphincter begins to squeeze the cut causing the pain to resume. In order for tissue to heal it needs blood flow. There is a decreased flow of blood in areas of increased pressure and tension. It is for this reason that it is harder to heal a fissure. This scenario becomes a vicious cycle. Pain causes contraction of the muscles which causes more pain. More pain causes more spasm which decreases the blood flow. The wound healing decreases which in turn causes the fissure to re-open causing pain, contraction and so on.

Along with the internal sphincter muscle spasm, hemorrhoid engorgement further increases anal pressure and tension. As the muscles squeeze, the blood within the muscle is pumped into the nearby veins. The veins within the anus are large venous cushions called hemorrhoids. All humans have at least 3 internal hemorrhoids. Hemorrhoids are apart of our anatomy just like fingers, toes, ears and nose. As the blood is pumped into them they engorge and become bigger. The anus is a confined space so as the hemorrhoids increase in size they fill the space which increases pressure and tension. Think about a room with 4 walls a floor and a ceiling. This is a confined space as it does not expand. If you were to stand in the middle of a room with 3 gigantic water balloons filling with water you would feel the increasing pressure and tension as the balloons filled this space. This engorgement of the hemorrhoids adds more pressure and tension decreasing the ability of the fissure to heal. Treating a fissure involves treating the increased pressure and tension within the anus.

FISSURE HEALING:

How does a fissure heal? The best way is to get the internal sphincters to relax enough to allow the fissure to heal but not enough to have issues with incontinence. Treatments are listed below.

TREATMENT OF FISSURES

Non-Surgical treatment

- *Sitz Baths*
 - A sitz bath can be done using your bath tub or by purchasing a sitz tub. A sitz bath is a warm to hot tub of water. After a bowel movement you quickly get into the warm/hot tub of water (not so hot as to scold yourself). The warm/hot water helps to relax the anal muscles. I recommend sitz baths after each bowel movement for up to 2 weeks. This treatment is very effective when you are in the water. Unfortunately, once the sitz bath is over the symptoms may return. This is excellent treatment of the pain after having a bowel movement, however, you can't do this during the day when you are out running errands or at work. The other forms of therapy will need to be used in conjunction with the sitz baths.

If the pain with defecation is extremely severe, and unbearable than I recommend having the bowel movement in the sitz tub. Yes I want you to crap in a tub of warm to hot water. Just put the sitz tub on the toilet and fill it with warm to hot water and sit in the tub when you have to have a bowel movement. After you finish, turn it over into the toilet, flush and wash out the sitz tub so you can use it again. Sitting in the hot water while having a bowel movement keeps your muscles relaxed at all times. This method is very effective in decreasing and, in some cases, preventing pain with bowel movements.

- *Fiber/Water*
 - Fiber such is a complex carbohydrate, which binds with water in the colon creating larger, softer, stool. Contrary to logical thinking, a larger bowel movement is more advantageous than a smaller or looser bowel movement. Larger, softer, stools stretch and relax the sphincter muscles helping the blood to flow. Large, soft, stools also require little pressure to pass. The less one has to bear down to have a bowel movement the less spasm occurs and less blood is engorged into the hemorrhoids. Personally, the bulking agent I recommend the most is Konsyl. It contains 6 grams of psyllium fiber, more than any other product. I use Konsyl every morning.

When shaken with about 4-5 oz. of orange juice it goes down smooth (no I do not own stock in the company). It is important to drink enough water during the day in order for the fiber to work. Eating fiber without enough water can lead to constipation. It is recommended to eat 30-35 grams of fiber per day. The average daily American diet contains only 6-10 grams of fiber! IF you can increase your fiber intake with 6-10 grams of extra fiber, this will help. It is also wise to eat foods lower in fat and cholesterol.

- Water is very important as it is soaked up by the fiber making the stools bulky and soft. At least four 8 ounce glasses are necessary per day. Caffeine and liquor are diuretics which increase urination causing dehydration. Stool becomes harder as the colon is used to reabsorb more water during times of dehydration. Water is a natural lubricant and is important for good bowel regularity. Therefore, coffee, tea, caffeinated sodas, and liquor do not count as water. Drinking water with each meal will add 3 glasses of water a day.
- *Stool Softeners*
 - If your stool is still hard after using fiber and water an over the counter stool softener such as Colace is recommended.
- *Nitroglycerine 0.2% Ointment*
 - This ointment is a “magic ointment”. It is not overnight magic, it is 2 week magic, which means that if used correctly, you will feel about 50% better in 2 weeks. Nitroglycerine is used for high blood pressure. It lowers blood pressure by relaxing smooth muscle. All blood vessels are lined with smooth muscle so when they relax the pressure within the arteries decreases. This is the same analogy with the internal sphincter muscle. If it relaxes the anal pressure will go down. Interestingly, the anal internal sphincter muscle is composed of smooth muscle. By rubbing the Nitroglycerine 0.2% outside the anus it get absorbed into the tissue and relaxes the internal sphincter. No you do not have to put it inside the anus. Since the anal skin is much more absorptive than regular skin, the ointment needs to be diluted. Only a specialized, compounding pharmacy can do this. Nitroglycerine 0.2% ointment will give 6-8 hours of muscle relaxation. By using it three times a day you will get 18-24 hours of therapy. Nitroglycerine relaxes the muscles just like sitting in hot bath; however, you don't need to have the bath tub with you at all times! One side affect of Nitroglycerine 0.2% is headaches. Most of the time they resolve in 1-2 days. If the headaches don't stop than you will need to discontinue the Nitroglycerine 0.2% and use Diltiazem 2.0%. If you have a history of headaches or Migraines you should not use Nitroglycerine 0.2%. Since Nitroglycerine can lower blood pressure you are not allowed to used Viagra or Cialis if you are using Nitroglycerine as the 2

different medications work together to lower your blood pressure which can cause you to pass out.

- *Diltiazem 2% Ointment*
 - Diltiazem is another “magic ointment” which also relaxes the internal sphincter muscle. It is not overnight magic, it is 2 week magic, which means that if used correctly, you will feel about 50% better in 2 weeks. In studies comparing Diltiazem 2% with Nitroglycerine 0.2%, Diltiazem was just as effective in curing fissures. Diltiazem does not cause headaches ; however, it has the same blood pressure lowering effects as Nitroglycerine 0.2% and can not be used with Viagra or Cialis.
- *Hemorrhoid Treatments (sclerotherapy)*
 - Treating the enlarged hemorrhoids (a painless office procedure) causes them to shrink which decreases the anal pressure. This will help to heal the fissure.
- *Antibiotics*
 - Infrequently a fissure may become infected and in these rare cases antibiotics can be helpful to treat the infection and decrease the amount of pain from the fissure. Other than these instances antibiotics are not helpful in curing a fissure.
- *Botulinum Toxin (Botox) injections*
 - Botox is a poison made from bacteria. Its main action in the body is to cause a temporary paralysis of muscle. When injected into the internal sphincter muscle it causes relaxation of the muscle. Botulinum Toxin injections are usually reserved for patients with chronic fissures. There are reports of good success with this treatment; however, recurrences can occur over time. Studies also report a transient incontinence to gas in 6-12% of patients. Due to the superiority of surgery for chronic fissures, I do not perform Botulinum Toxin injections to treat anal fissures.

Surgical treatment

- *Fissurectomy with partial lateral internal sphincterotomy (partially cutting the internal sphincter muscle)*
 - This surgery involves burning the fissure to promote healing along with cutting a small portion of the internal sphincter muscle. Cutting a portion of the internal sphincter muscle, insures that this portion of the muscle will never contract again. This permanent muscle relaxation is what helps to heal the fissure indefinitely. This surgery is very effective in curing the fissure. It is performed as an outpatient.

- *Adjacent tissue transfer flap*
 - This surgery involves cutting a portion of the skin around the fissure and using it to cover the fissure opening. The tissue is cut in a way that keeps its blood supply and then it is moved into the anus to cover the fissure. No muscle is cut in this surgery. This surgery is used for:
 - Patients with severe anal scarring which causes the opening to get very small.
 - Patients who already have minor incontinence issues or have a higher risk of incontinence than the average patient.
 - Patients with Crohn's disease with a chronic fissure
 - Patients with chronic diarrhea and an anal fissure.

- **THE BENEFITS OF SURGERY:**
 - 98% cure rate

- **THE RISKS OF SURGERY:**
 - Incontinence to gas or liquid stool (0 - 20% in the literature). The risks are about 5-10%.
 - Severe Bleeding 1-2%
 - Infection or abscess 1-2%
 - Fistula formation 1-2%
 - Anesthesia complications (rare)
 - Stroke
 - Clots in the legs
 - Heart attack
 - Pulmonary embolism
 - Death

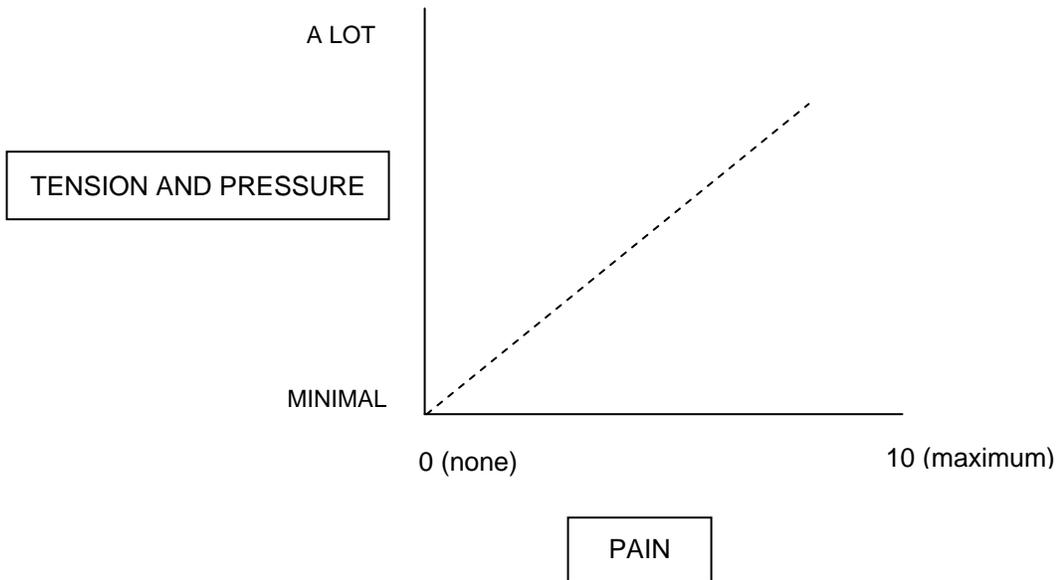
There are a few important things to remember. First is that fissure symptoms when diagnosed properly are not life threatening. Other diseases, which produce the same symptoms, can be more serious. Therefore, if you have a painful anal lump, rectal bleeding, or other anorectal issues, it is important to call my office for a consultation. Second is that even with the risks surgery to cure the fissure you should not suffer unnecessarily with continuous anal pain. If you are consistently changing your whole life activities (not exercising, drastic change in diet, avoiding eating out or going to an event, etc.) due to the pain and suffering of a fissure, and all of the conservative measures are not working, you should come in to discuss the surgery as it is 98% effective. If on the other hand your symptoms resolve and only every now and then do you develop a tolerable recurrence I suggest continuing conservative therapy. The bottom line is that if you do not need surgery you should not even be in line for a surgery, and when you do need surgery you should be at the very front of the line to have it done.

I _____ received this information sheet on Fissure-in-Ano and Treatment.

Signature

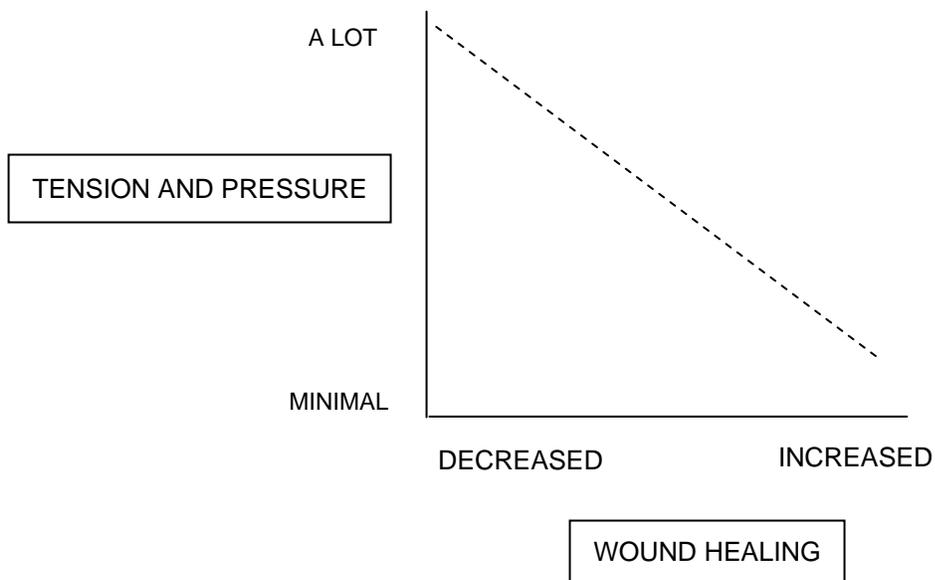
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GRAPH 1



The relationship between pain, tension and pressure

GRAPH 2



The relationship between wound healing, tension and pressure