

AN EXPLORATORY STUDY ON ANAL FISSURE- A REVIEW LITERATURE

**Dr. Shaikh Arhama Jasmineen Shaikh Akbar^{1*}, Dr. Khursheed Ahmed², Dr. Akhtar Husain Chaudhary³,
Dr. Tooba Tabassum Abdul Malik⁴ and Dr. Mohd. Arshad Maqbool Ahmad⁵**

^{*1,4,5}PG Scholar, Dept. of General Surgery, ZVM Unani Medical College & Hospital, Pune.

²Professor, Dept. of General Surgery, ZVM Unani Medical College & Hospital, Pune.

³Professor & HOD, Dept. of General Surgery, ZVM Unani Medical College & Hospital, Pune.



***Corresponding Author: Dr. Shaikh Arhama Jasmineen Shaikh Akbar**

PG Scholar, Dept. of General Surgery, ZVM Unani Medical College & Hospital, Pune.

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ABSTRACT

Fissure in ano is a chronic Disease in male and female. Most cases of chronic fissure do not respond to medical treatment. Razi and Ibn Sina were 2 of the best-known scientists of ancient Persia. The purpose of this study was to find out new scientific evidence in modern medicine about their recommendations, in order to find certain clues to conduct useful researches in the future. First, treatments of anal fissure mentioned by Razi and Ibn Sina were reviewed. Management of anal fissure according to Razi's and Ibn Sina's practices is done based on 3 interventions: lifestyle modifications, drug treatments, and manual procedures. Almost all remedies suggested by Razi and Ibn Sina have shown their effects on fissure in ano via several mechanisms of action in many in vitro and in vivo studies; Still there is lack of human studies on the subject.

KEYWORDS: Fissure in ano toward Anal dilation, Sitz Bath, Nifedipine Ointment.

I. INTRODUCTION OF ANAL FISSURE

Fissure in ano is a linear tear in the anoderm usually extending distally from the dentate line to the anal verge.^[1] It is one of the most common ano-rectal problems. It is reported that 1 in every 5 people will suffer from anal fissure during their lifetime. It is more common in teenagers and young adults although it can be seen in all ages.^[2] Although the exact etiology of anal fissure is unknown, the initiating factor is thought to be trauma from the passage of hard stool with painful bowel movement.^[3]

Most anal fissures are acute and heal spontaneously or with conservative care in less than 2 weeks.^[2] Although there is no defined time period distinguishing acute from chronic fissures, some articles suggest that if a fissure fails to heal within 6 weeks, it is considered to be chronic.^[1,2,4]

Acute anal fissures can be managed by conservative methods such as stool softeners and improvement of local hygiene, but the treatment of chronic anal fissures is usually more difficult, therefore they are treated by surgery.^[3] The procedure of choice is lateral internal sphincterotomy.^[5] Fissures often recur after medical therapy.^[6] On the other hand, surgical treatment of chronic anal fissure is associated with complications such as ecchymosis, hematoma,^[7] pain, postsurgical secondary infection,^[8] abscess and fistula

formation,^[9] long hospital stay,¹⁰ and a degree of incontinence, which has been reported to be in up to 30% of patients.¹¹ Nowadays, the use of nonsurgical method as the first-line treatment of chronic anal fissure is well accepted. Because of possibility of failure and complications after surgery, research for the nonsurgical treatment of chronic fissure continues.^[10]

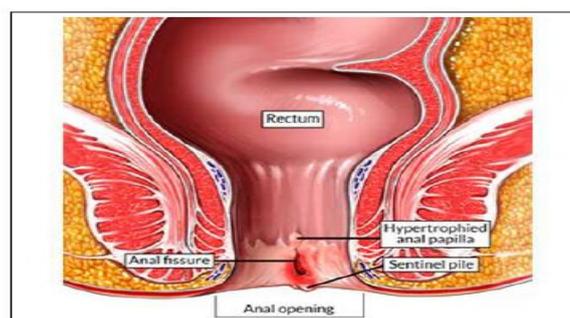


Fig. 01: Anatomy of anal fissure.

Complementary and alternative medicine is a branch of medicine based on the holistic concept of health that can improve the quality of life along with the treatment of the ailment.¹² The philosophy behind complementary and alternative medicine is different from that of Western medicine. Today traditional medicines as a part of complementary and alternative medicine are being

practiced in large parts of Asia, Africa, and Latin America due to the availability and affordability.^[13]

The principles of traditional Persian medicine are based on 4-fold elements, namely fire, air, water, and earth and each one has its specific quality: fire is hot and dry, air is hot and moist, water is cold and moist, and earth is cold and dry. The entire world is made up of these elements and the different ratios of them in every object is responsible for the diversity present in our universe. Elements combine with each other to create an object and based on the dominant element(s) and its quality the object will possess a new quality in all of its particles known as *Mizaj* (temperament). For instance, if fire is dominant the object has hot and dry temperament. Accordingly, traditional Persian medicine practitioners believe that each disease has its own temperament and it should be managed by its opposite quality.^[16]

There is information and data in traditional Persian medical books about natural products and medicinal plants that are used by Persian scientists for the treatment of fissure in ano. Scientists like Razi,^[17] Majusi Ahwazi,^[18] Ibn Sina,^[19] Jorjani,^[20] Ibn Nafis,^[21] Samarghandi,^[22] Muhammad ibn Muhammad Abdullah,^[23] and Arzani^[24] have devoted a chapter of their books to fissure in ano disease.

In this article, we represent the opinion of two Persian *hakims* (practitioners), Abu Bakr Muhammad ibn Zakariya Al-Razi known to the West as Rhazes (born circa 854, Rayy, Persia [now in Iran] died 925/935, Ray) and Abu Ali Al-Hussain Ibn Abdullah Ibn Sina better known as Avicenna (born 980, near Bukhara, died 1037, Hamadan, Iran) on the treatment of fissure in ano.^[25,26] In light of their teachings we have investigated the modern medical findings as well in the field of fissure in ano.

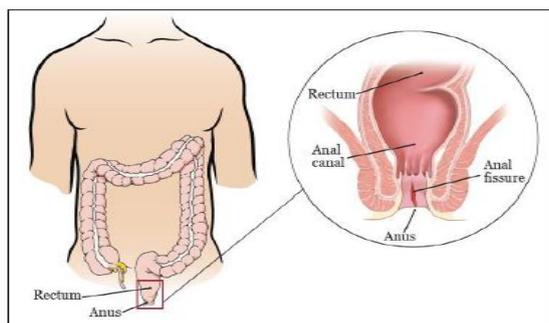


Fig. 02: Anal Fissure- A common disease.

An anal fissure is a crack or tear in the lining of anal canal. It's a common cause of anal pain and rectal bleeding, especially during bowel movements. Anal trauma usually causes a fissure, especially from straining to pass hard stools. Anal fissures can occur suddenly or gradually. They can also heal quickly or slowly. Anal fissures are very common, especially in infants and pregnant people. About half of people with anal fissures get them before they turn.^[40]

II. Symptoms of anal fissure

The most common symptoms are:

- Sharp pain when passing stool.
 - Burning or itching while passing stool.
 - Fresh, red blood in stool.
- Some people may also have:
- Anal muscle spasms.
 - A lump on the skin near the tear.

Most people but not all feel pain with an anal fissure. They feel it most when passing stool, but it can last for minutes to several hours after. They describe it as sharp, tearing, cutting or burning. Some people find that the pain radiates to their buttocks, upper thighs or lower back. Hemorrhoids and anal fissures have similar symptoms and causes, and it's easy to mistake one for the other. Both can happen when you strain too much to pass stool, and both can cause rectal bleeding, anal pain and anal itching. While hemorrhoids are more common, anal fissures are more commonly the cause of anal pain. Hemorrhoids don't always cause pain, but 90% of fissures do. However, the pain from a fissure usually occurs in episodes, while hemorrhoid pain can be constant.

III. Cause of an anal fissure

Trauma like stretching and straining causes your anal lining to tear. But preexisting conditions can also play a role. This has to do with the anatomy of your anus (butthole), which is really the last few centimeters of the long, muscular tube known as your large intestine. Toward the end of your anus, where it opens to the outside, the skin is more like the skin on the outside of your body. But in the upper portion, where fissures usually happen, the anus is lined with the same soft mucosa as the rest of your large intestine. This mucous lining is thinner and more delicate than normal skin, making it easier to tear. This is especially true for babies, who often get anal fissures. It can also become inflamed by injury or disease. Long-term (chronic) inflammation can weaken the tissues. Your anus is surrounded by two circular muscles that help control your bowel movements (your anal sphincters). If these muscles are too tight, they can add tension to your anal lining, making it easier to tear and even reducing blood flow to the tissues. Primary causes of anal fissures include:

- Chronic constipation and straining to poop.
 - Obstructed defecation syndrome.
 - Infant dyschezia.
 - Chronic diarrhea.
 - Childbirth.
 - Penetration.
- Other contributing conditions include:
- Prior surgery.
 - Sexually transmitted infections (STIs).
 - Inflammatory bowel disease (IBD).
 - Anal cancer.
 - Tuberculosis (TB).
 - Diaper rash.

IV. Complications of anal fissures

Many anal fissures heal by themselves in a few weeks, but complications can develop when they don't. These are called chronic anal fissures. Instead of healing, they continue to reinforce themselves in a vicious cycle, leaving a persistent wound. Pain and muscle clenching can cause your anal muscles to tighten and spasm. Muscle tension and anal spasms pull the fissure apart and reduce blood flow to the tissues. This makes it harder for it to heal, and also more painful, causing more tension.

If an anal fissure doesn't heal lead to further complications such as:

- Fecal impaction.
- Anal stenosis (Narrowing of the anal canal that can make it harder to poop).
- Anal fistula.

V. Diagnosis and Tests of anal fissure

A healthcare provider will ask you about your symptoms, and then try to see the fissure. You'll lie on your belly or on your side while they gently separate your buttocks. If this is too painful, they don't have to go further. They can safely assume that you have an anal fissure. But if you can tolerate an exam, they'll try to see the fissure so that they can rule out other possible causes for your symptoms. They might gently insert a lubricated gloved finger to open your anus, noticing any tenderness or muscle spasms. This is a digital rectal exam.

VI. Management and Treatment of anal fissure

Most do. These are acute anal fissures (temporary). They might not need any treatment at all, beyond self-care. Or you might only need a prescription cream for temporary pain relief, like lidocaine. But if your fissure hasn't healed after several weeks, it needs treatment. But if the fissure doesn't heal and last for 8 weeks it's called as chronic anal fissure and its need medical treatment focuses on relaxing the anal sphincter muscles that surround the anal canal. This should allow the fissure to begin to close and help restore blood flow to the tissues.

VII. Medications of anal fissure

Medications for anal fissures include:

- **Nitroglycerin ointment:** Nitroglycerin is a vasodilator, a medicine that makes your blood vessels expand. Applied as a cream, it can restore blood flow and can help your anal sphincter relax. However, it can cause headaches, and some people have to discontinue it for this reason.
- **Calcium channel blockers:** Such as diltiazem or nifedipine, are an alternative way of relaxing blood vessels and anal muscles.
- **Botox®:** As a last resort, a Botox injection into anal sphincter muscle can help relax it. Botox is a muscle relaxant. Its effects last for about three months.
- **Bulk laxatives:** Bulk laxatives, such as Metamucil® (psyllium), increase intake of fiber and fluids. Sitz bath i.e. Warm water or Unani

formulations for 10-20 minutes daily, this can help relax the sphincter and promote healing.

VIII. Nonsurgical treatments of anal fissure

- **Externally applied nitroglycerin (Rectiv).** This can help increase blood flow to the fissure and promote healing. It also can help relax the anal sphincter. Nitroglycerin is generally considered the treatment of choice when other conservative measures fail. Side effects may include headache, which can be severe.
- **Topical anesthetic creams** such as lidocaine (Xylocaine) may help relieve pain.
- **Onabotulinumtoxin A (Botox) injection,** to paralyze the anal sphincter muscle and relax spasms.
- **Blood pressure medicines,** such as nifedipine or diltiazem, to help relax the anal sphincter. These medicines are generally applied to the skin but also can be taken by mouth. However when taken by mouth, their side effects can be greater. These medicines may be used when nitroglycerin is not effective or causes significant side effects.

IX. General surgery of anal fissure

A. Lateral internal sphincterotomy

This procedure involves cutting the sphincter muscles around anus to release the tension in the muscles. This lets the fissure heal. The operation is done under general anaesthesia, which means be asleep. The procedure can be done in two ways. In an open sphincterotomy, surgeon makes a small cut in skin so they can see the sphincter muscle. The cut is usually left open to heal. In a closed sphincterotomy, surgeon passes a blade under skin to reach and cut the muscle.

Lateral internal sphincterotomy is the most effective type of surgery for anal fissure. Between 9 and 10 out of every 10 people who have this surgery find that their fissure heals. This is usually within 8 weeks of treatment. Fissure may come back again after this surgery but this is less likely than with Botox injections.

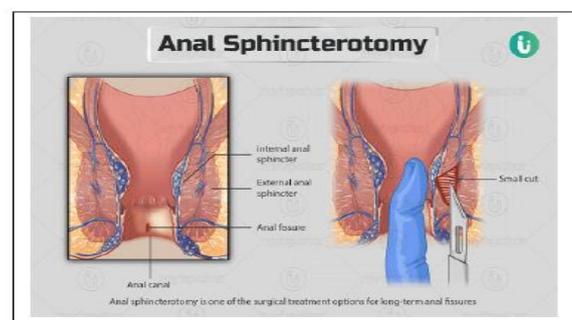


Fig. 03: Anal sphincterotomy.

The main complication after this type of surgery is incontinence. Up to 3 in 10 people may have some problems controlling their bowels at first, including when they poo or pass wind. These problems are usually minor and get better over time, but for around 2 in 100 people, they can be permanent. Other possible

complications include the following.

- Bleeding from the area around anus or under skin (a haematoma).
- An infection, which causes an abscess. If this happens, it's usually treated by draining the abscess or taking antibiotics.
- An anal fistula. This is a small channel that develops between the inside of bottom and skin. It can usually be treated with a small operation.

B. Anal advancement flaps

In this procedure, surgeon takes a piece of healthy skin and stitches it in place to replace the damaged skin in the fissure. This is only suitable for a small group of people. The treatment is less effective than a lateral internal sphincterotomy but is less likely to cause incontinence.

Aftercare following an anal fissure procedure

Anal fissure procedures are done under general anesthesia as a day-case procedure in a hospital. This means patient have the procedure and go home on the same day. After procedure, need to rest until the effects of the anesthetic have worn off. Also need pain relief to help ease any discomfort.

A general anesthetic can effect on co-ordination and make it difficult to think clearly. Patient shouldn't drive, drink alcohol, operate machinery or make any important decisions for 24 hours after anaesthetic. A friend or relative should stay with Paitient for the first 24 hours while the anesthetic wears off.

C. Anal fissure surgery recovery

It takes a day or two to recover from having Botox injections. It may take a week or two to recover after a sphincterotomy or fissurectomy. Some pain and discomfort after any type of anal fissure surgery. Suggest painkillers and medicines to take at home. Drink plenty of fluids and eat foods that are high in fibre. This will help to keep poo soft, making it more comfortable when you go to the toilet. High-fibre foods include fruit and vegetables, wholegrain breads, and cereals.

It's important to keep bottom clean and dry. Doctor or nurse will give some advice about this before leave

hospital. They may suggest taking a bath or shower every time have had a poo. Or, it may be best to gently clean the area with damp cotton wool. Might notice blood in poo or on the toilet paper for up to 10 days after operation. Some people also get mucus from their bottom for a few days.

The recovery time varies from person to person. Most people feel well enough to return to their usual activities within a few days. If develop severe pain, bleeding or a fever get medical advice. Contact GP or the hospital.

D. Follow-up after anal fissure procedures

Normally have an appointment after anal fissure procedure to check if it's healed. If fissure hasn't healed after Botox injections, doctor may suggest trying the same treatment again. Or they may suggest a sphincterotomy operation or anal advancement flaps. If fissure still doesn't heal or comes back again, surgeon may suggest some tests to check the results of the surgery. These may include an ultrasound scan and tests to see how well sphincter muscle is working. Doctor may also investigate whether or not there is an underlying cause for the fissure. Medical conditions like Crohn's disease and some sexually transmitted infections can cause an anal fissure. Treating any underlying conditions may help to heal the fissure.

E. Anal dilation technique

Sometimes the anal opening is smaller than it should be. This can cause medical complications and can also be uncomfortable. Left unattended, the opening may tighten further. Anal dilation involves sliding a special tool into the anus to hold it open. The process may also work to stretch the opening to a more normal size. Dilation is done through a series of anal dilators of different sizes. These tools have cylindrical or tapered shapes. Dilatan dilators, for example, come in five different sizes. These plastic dilators have a rounded tip for smooth insertion, and they also have a disc-shaped base to hold on to during use. Dilation can be done at home. Keep in mind, anal dilation should only be performed on a doctor's recommendation, and follow the schedule set forth by medical team.

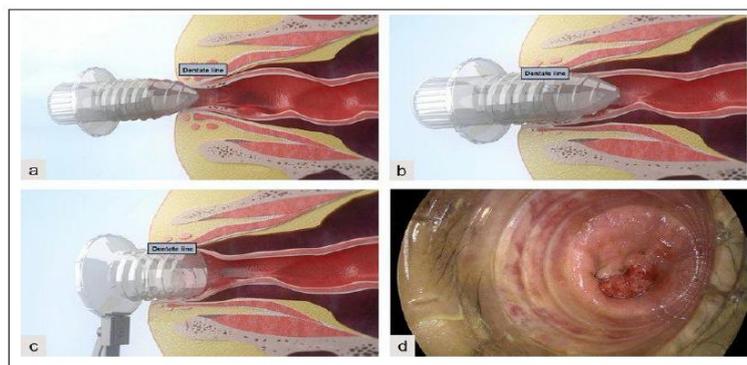


Fig. 4: Transparent screw thread anal dilator.

The rounded shape of a dilator helps the tool slide into the anal opening. After inserting a dilator, it should be left in place for about 30 seconds to stretch the tissue. There may be some resistance and discomfort, but using the correct size of dilator should prevent intense pain. For most patients, this process will need to be repeated daily or multiple times a day over an extended period of time.

To stretch the opening, doctor may recommend that gradually increase the size of the dilator. As one size becomes easy to slide into the anus, it should be replaced with a dilator with a larger diameter. Anal dilation is sometimes recommended as a complement to treatments for various colorectal problems and diseases. Sometimes, widening the anus is recommended in order to help a patient pass waste material. Other times, it may be done in an attempt to relieve pressure on tissue that is affected by a medical condition. Anal stricture or stenosis is when the anal passage is too tight. This is usually caused by scar tissue that forms in the area. It can develop as a post-surgical complication, or it may be the side effect of Crohn's disease or another chronic condition.

A stricture can make it quite difficult to pass normal stools. This can lead to serious constipation and related problems. Anal dilation can help to widen the anus and rectum to their normal size so that waste can pass through normally. In other colorectal conditions, a too-tight rectum might be aggravating the problem, so dilation could be recommended in an attempt to reduce the tightness. These conditions can include:

- Hemorrhoids.
- Fissures.
- Fistulae.

Anal dilation is particularly important after a corrective surgery to repair a malformation of the colorectal tract. This is often done in children who are born without an anus or whose anal opening is the wrong place. The surgery creates a new opening through which waste can pass. Without proper aftercare, such as dilation, the body's natural healing process will try to close up this hole. Practicing regular anal dilation can hold this new passage open so that the surgical site can heal as intended by the doctors. Over time, increasing the size of the dilators may stretch the tract to the appropriate size. The affected person may be able to pass waste naturally instead of relying on a colostomy bag.

X. Prevention of anal fissure

If a chronic condition that affects anus, whether it's a disease, trouble with pooping or unexplained pain, see a healthcare provider about it. Treating these conditions sooner can prevent complications like anal fissures from developing or returning. Follow these tips to stay regular and prevent constipation before it becomes a medical problem. Most anal fissures will heal on their own, but you can help the process along with a little self-care. Here's some advice:

- To make pooping more comfortable, consider a stool softener. Use a step stool to support your feet while sitting on the toilet, which helps position your hips in a squatting position.
- Wipe anus carefully with soft paper or alcohol-free wet wipes. Consider using a bidet, or shower after pooping.
- Apply a topical ointment or cream to fissure. Petroleum jelly can promote healing by sealing in moisture and acting as an antibiotic. Medicated creams can treat inflammation and pain.
- Take a sitz bath two or three times a day for at least 10-15 minutes. This is a shallow, warm water bath that sit in to soak anus. It can relieve symptoms and help relax muscles. It might help to:
 - Drink more water.
 - Eat more fresh fruits and vegetables.
 - Avoid spicy foods and nuts.

XI. Management of anal fissure

A. Sitz bath

A warm sitz bath can help get relief from anal fissures. It can help the patient get rid of the pain, swelling, and discomfort caused due to the disease. The simplest way to do is to fill warm water in the bathtub and add a few drops of natural lavender oil. And mix it thoroughly. Make sure the water and the bathtub are clean. Sit in a straight posture in the tub for 15 to 20 minutes. Repeat the sitz bath up to three times each day. Make sure to keep the water at an optimum temperature. Excessively hot water can damage the fissure and make it more irritating and complicated for the patient.



Fig. 05: Sitz bath for anal fissure.

B. Diet and Lifestyle changes

The patient is suggested to avoid sitting on hard surfaces for continuous hours as it may put a lot of pressure on the anal area and irritate the skin. The patients suffering from fissure are suggested to increase the intake of fluids. The patient should drink a lot of water and consume a fiber-rich diet each day for easy passage of stool. Such patients are suggested to take around 25 to 30 grams of fiber each day. These two things would prevent the passing of hard stool and make it less painful for the patient in the future.

C. Avoid unhealthy food: Strictly avoid

Junk food and hard solids like chips, nachos, popcorn, etc which are sharp. The point here is that such foods form a hard poop, which can cause more pain while passing stool. Home remedies are effective for treating anal fissures in the initial stages of the disease. If the disease is recurring again and again or not healing even after taking precautions and trying natural remedies and over the counter treatments. The fissure has to be treated surgically in such cases.

- Take care of the washroom hygiene: If it pains when wipe it after bowel movement, know how to wash butt properly. Gently dab on the affected area. Instead of toilet papers, use soft, fragrance-free wet-wipes to clean the area.
- Avoid straining during bowel movement: Treating constipation can solve the problem of straining during bowel movements.

XII. Foods to avoid in fissure

All food items that trigger problems like indigestion, bloating, constipation or diarrhoea must be avoided. A particular food may suit one person but not the other. Understand triggers and exclude the food that may cause digestive problems. Here are some foods to avoid-

- Foods with chilly powder:** Spicy foods are known to aggravate the stomach and thus make stool passing a painful job. Stay away from all kinds of food items that have been made with a lot of chillies or other spicy mixtures.
- Fast food:** Fast foods have almost no fiber content and are harder to digest. Tone down fast food consumption and reduce intake of recipes made of all-purpose flour (maida) until symptoms have lessened.
- Dairy products:** Milk, cheese and other heavy cream products should be avoided while suffering from symptoms of anal fissure.
- Red meat:** Red meat is the hardest to digest and can delay stool passing, thus is not advisable to consume for people with symptoms or tendencies of anal fissure.
- Fried foods:** Difficulty in digesting and are extremely hard to excrete. Additionally, most of them have zero to negligible fibre or nutrition content.
- Salty foods:** The main reason why salty food should be avoided is that they cause bloating, making excretion a tedious task.
- Alcohol:** Alcohol tends to make dehydrated. Consuming alcohol for a patient may prove to harden stool passing. It dries up stool and is not a good option for people with fissures.
- Caffeinated beverages:** Coffee and strong milk tea can cause stool passing to be a tedious task while hardening the stool as well.
- Packaged foods:** Pre-packed foods like chips and fries are not healthy in general, but due to lack of

fibre they should be strictly avoided by people who are showing symptoms or have fissures.

- Frozen foods:** Frozen food items may sometimes lose their nutritional content during the freezing process. Fresh fruits and vegetables should be consumed and frozen ones should be avoided.

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