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Review Article

INDICATING THE FINEST TREATMENT FOR CHRONIC FISSURE IN ANO

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ABSTRACT

An anal fissure is a common, mostly benign, condition that can be acute or chronic. The diagnosis is usually made on history and physical examination, but further investigations are sometimes necessary. Primary fissures are usually benign and located in the posterior or anterior position. Secondary fissures are lateral or multiple and often indicate a more serious underlying pathology. Anal fissure is largely associated with high anal sphincter pressures and most treatment options are based on reducing anal pressures. Conservative management, using increased fiber and warm baths, results in healing of approximately half of all anal fissures. New therapies include perineal support devices, Gonyautoxin injection, fissurectomy, fissurotomy, sphincterolysis, and flap procedures. Further research is required comparing these new therapies with existing established therapies. New therapies are not suitable as first line treatments, though they can be considered if conventional treatment fails. In fissures if conservative care fails, various pharmacologic and surgical options offer satisfactory cure rates. Lateral internal sphincterotomy remains the gold standard for definitive management of anal fissure. This review outlines the key points in the presentation, pathophysiology, and management of anal fissure.

KEYWORDS: Anal fissure, Sphincterotomy, Anal sphincter, Conservative treatment.

INTRODUCTION

Fissure in ano is very common condition that is presented in majority of the world population. It is common disease of anus and a painful condition which makes the patient often anxious and embarrassed. This condition show considerable reluctance to heal. Fissure in ano is an oval, ulcer like longitudinal tear at the mucocutaneous junction extending from the anal verge towards the dentate line. It was first recognized as a disease in 1934.[1] commonly it occurs in the middle posteriorly, but can also occur in the midline anteriorly. 95% of anal fissures in men are posterior, 5% are anterior where as in females 80% of anal fissure are posterior and 20% are anterior.[2] Fissure occurring off the midline should raise the possibility of other bowel conditions (e.g. crohn's disease), infections (sexually Transmitted Disease and AIDS) [3] or cancer. Anal fissure is most common cause of severe anal pain and bleeding per anus and children also. It affects more than 10 % of patient attending proctology clinic[4] and the incidence is growing high day by day.

The classification of anal fissure is based on causative factors. Primary fissures are typically benign and are likely to be related to local trauma such as hard stools, prolonged diarrhea, vaginal delivery, repetitive injury or penetration. Secondary fissures are found in patients with previous anal surgical procedures, Inflammatory Bowel Disease (Crohn's disease), granulomatous disease (e.g. Tuberculosis, sarcoidosis), infections (e.g. HIV/ AIDS, Syphilis) or malignancy.[5] Acute anal fissure is the tear of the skin of the lower half of the anal canal, With severe sphincter spasm without oedema or inflammation. It present with severe pain and constipation.[6] Chronic fissure are associated with raised edges, exposed internal sphincter muscle, distal sentinel tag, and hypertrophied anal papilla at the internal apex. It is less painful than acute one and cause repeated infection- fibrosis- abscess formation- fistula formation. AN acute anal fissure commonly heals with 4-8 weeks of conservative therapy. If this therapy fails and the fissure becomes chronic, surgery is usually required.[7-9]

Pathophysiology of Anal Fissure

The pathophysiology of anal fissure is not entirely clear. Various studies have suggested that both anorectal mechanics and blood flow to the anal canal may play a role in anal fissure development. Initial minor tears in the anal mucosa due to a hard bowel movement probably occur often. In most people, these heal rapidly without long term sequelae. In patients with underlying abnormalities of internal sphincter, however, these injuries progress to acute and chronic anal fissures. Studies of the internal anal sphincter and of the anal canal physiology have been performed with varied results but at least one abnormality is likely

present in the internal anal sphincter of anal fissure patients.

The most commonly observed abnormalities are hypertonicity[10] and hypertrophy of the internal anal sphincter, leading to elevated anal canal and sphincter resting pressure. The internal sphincter maintains the resting pressure of the anal canal; anal rectal manometry can be used to measure this pressure. Most patients with anal fissures have an elevated resting pressure which returns to normal levels after surgical sphincterotomy. In addition, relative ischaemia of the posterior anal canal has been implicated in chronic non-healing anal fissures. Post mortem angiography of the inferior rectal artery has demonstrated that posterior commissure of the anal canal is poorly perfused in 85% of patients compared with other sections.[11] Anal hypertonicity may aggravate perfusion to the anal canal. Pressure on the vessels passing perpendicular through the internal anal sphincter muscle during increased sphincter tone may compromise perfusion to the posterior commissure where blood flow is already sparse.[11] Shouten *et al.* assessed microvascular perfusion of the anoderm by laser Doppler flowmetry and demonstrated significantly lower anodermal blood flow at the fissure site than at the posterior anal commissure of the controls[12]. They also showed that IAS resting pressure was inversely related to the blood flow at the posterior midline and blood supply was significantly lower at the posterior midline than anywhere else in the anal canal in healthy individuals.[12,13]

The pathophysiology of anterior fissures may be different than chronic posterior fissures. Jenkins and colleagues showed that anterior fissure patients were significantly more likely to have occult external sphincter injury and impaired external sphincter function compared with posterior fissure patients. In addition, anterior fissures were identified in a younger and predominantly female group of patients. In these patients, maximum squeeze pressure was significantly lower compared with the posterior fissure group. Also, maximum resting pressure was not significantly elevated compared with controls, but was significantly elevated in posterior fissures. These findings may have important implications for the management and treatment of this common subgroup of anal fissure patients.[14]

Clinical Features

The principle symptoms in adults are anal anal pain, bright red bleeding, perianal swelling and occasionally mucous discharge.

Pain

The pain is acute and is felt in the anal canal during and defecation. The pain starts with the act of defecation and is described as a sharp/ cutting or tearing; which subsequently continues as a burning or gnawing discomfort for several hours following stool. To some patients the pain is so agonizing that they tend to become constipated rather than go through the agony of defecation. Constipation soon complicates the clinical picture and aggravates symptoms.

Bleeding

Bleeding may or may not be present. It is small in amount, is bright red in color. Profuse blood loss is rare.

Swelling and Discharge

are characteristics of chronic fissure, which may be complicated by pruritis ani and perianal excoriation. Discharge may indicate an intersphincteric abscess or a fissure- fistula

Examination

The examination of the anal fissure is a very difficult procedure because it is one of the most painful conditions. For the examination of fissure-in-ano, the patient should be kept preferably on the lithotomy position on a lithotomy table with a proper light.

Inspection

In most patients it is possible to make a diagnosis of anal fissure by inspection alone. Despite excessive sphincter activity, it is usually possible to notice a skin tag along with a small amount of blood or discharge on the perineum. Gentle traction on the lateral margins of the perineum nearly always reveals a fissure if one is present below the dentate line. Sometime perianal dermatitis also present near anal verge which causes itching to the patients.

Palpation

Palpation of the fissure in ano is most painful part of the examination and it is not usually done. By palpation we confirm the presence of sphincteric spasm, the rounded lower edge of the internal sphincter being easily palpable just distal to the fissure itself. The passage of the finger is uncomfortable. But the maximum tenderness is elicited when finger is placed on the fissure itself, induration of the lateral edges of the fissure, indicating fibrosis. At the upper end of the fissure a hypertrophied anal papilla may be palpable. The digital examination is of course important as a means of excluding other lesion in the lower rectum.

Proctoscopy

This is often impossible because patient comes with agonizing pain, if necessary it has to be performed with a smaller proctoscope than usual, for the final withdrawal of the end of the open instrument over a tender fissure may be very uncomfortable indeed. In doubtful cases, however, it may show the fissure more clearly than was possible on simple inspection. Proctoscopy may also demonstrate other lesions such as internal haemorrhoids or proctitis which may have a bearing on the patients complaints.

Sigmoidoscopy

This is necessary in case of secondary fissure to identify the primary pathology. It is done under general anesthesia to diagnose distal proctitis, colitis, crohn's disease, tuberculosis, adenomatous polyps, which can cause secondary fissure.

Differential Diagnosis

The differential diagnosis of a primary anal fissure is limited but includes a haemorrhoid, anal fistula or solitary rectal ulcer. These conditions can be excluded by careful clinical assessment. Secondary anal fissures may have characteristic features in the patient's history such as risk factors for anal cancer, or medical conditions such as Crohn's disease, tuberculosis, sarcoidosis, HIV/AIDS and syphilis. These fissures often lie laterally or are multiple in number. Further investigations must be performed as the underlying cause will determine subsequent management.

Management

There are no clear guidelines on anal fissure management. The goals of management are to break the cycle of anal sphincter spasm allowing improved blood flow to the fissured area so that healing can occur.

Non-operative Management

The majority of initial anal fissures can be managed medically. In fact, almost half will heal with conservative therapy alone using warm baths and increased fiber intake.[15-17] Warm sitz baths may lead to healing of anal fissures via a somatoanal reflex that results in relaxation of the internal anal sphincter.[18] According to the practice parameters set

by the American Society of Colon and Rectal Surgeons, increased fluid and fiber ingestion, the use of sitz baths, and if necessary, the use of stool softeners are safe, have few side effects, and should be the initial therapy for all patients with anal fissure.[19] When conservative measures fail, the next step in the management of anal fissure has traditionally been surgery. However, given the potential risk of incontinence with surgery, the last decade has brought significant interest and investigation in the use of pharmacologic agents to reduce anal pressures and avoid surgical intervention.

Topical Nitrates

Organic nitrates such as glyceryl trinitrate (GTN) undergo cellular metabolism to release nitric oxide (NO).16 Nitric oxide works as an inhibitory neurotransmitter in the internal anal sphincter resulting in sphincter relaxation.[20] The topical application of GTN in dilute form (0.2%) has been shown to cause decreased anal resting pressures.[21]

Calcium Channel Blockers

Calcium channel blockers (CCBs) relax the internal anal sphincter by blocking the influx of calcium into the cytoplasm of smooth muscle cells.[22] It has been shown that both nifedipine (0.2–0.5% gel) and diltiazem (2% cream) promote fissure healing by decreasing mean anal resting pressure.[23-25] Topical CCBs have been shown to be better than both lignocaine ointment and hydrocortisone cream, with up to 95% remission in two studies.[25, 26]

Limitations

The main limitation to using topical glyceryl trinitrate is headaches and lightheadedness. This results in up to 20–30% of patients ceasing therapy prematurely.[27,28] Headaches also occur in a similar proportion of patients using topical calcium channel blockers, however they occur less frequently so may be more tolerable.[29] Patients using topical glyceryl trinitrate should not take sildenafil, tadalafil or vardenafil due to the risk of hypotension. For patients with angina or heart failure taking nitrates, topical glyceryl trinitrate may cause nitrate tolerance if used during the nitrate-free interval.[30]

Other topical medications commonly used in clinical practice are lignocaine and hydrocortisone. There are also several other topical medications under investigation including bethanechol, indoramine, minoxidil, clove oil and sildenifil, but current evidence does not support their use.[9] Current evidence also does not support the use of oral rather than topical calcium channel blockers in the management of anal fissures.[28]

Botulinum Toxin

Botulinum toxin is produced by Clostridium botulinum and acts as an inhibitory neurotransmitter preventing release of acetylcholine from the presynaptic terminals. It has been shown to cause relaxation of both the external and internal anal sphincters lasting for up to 3 months.[31,32]. The main side effect with botulinum toxin injection is mild incontinence to flatus and stool, lasting up to 3 weeks.[33,34] Although the risk is significantly lower compared with lateral internal sphincterotomy, there have been two case reports of long-term fecal incontinence with botulinum toxin injection of the anal canal.[35,36] Nonetheless, comparison with lateral internal sphincterotomy reveals that botulinum toxin injection of the internal anal sphincter has lower healing rates and higher recurrence, but comes with a lower chance of long-term incontinence.

Operative Management

Surgery is considered for patients not responding to conservative measures. When conservative measures fail, a surgical approach becomes necessary for the definitive management of the chronic anal fissure.

Dilation of the anal canal

For the treatment of anal fissure was first described in the 1860s, but was popularized in the 1960s.The procedure is manual stretching of the anal canal with two, then four fingers applying considerable outward force on the lateral walls of the anal canal. Dilation is performed for no less than 4 minutes.

Lateral internal sphincterotomy

The gold standard surgical operation for anal fissure is lateral internal sphincterotomy. This procedure commonly involves division of the internal anal sphincter from its distal end to either the proximal end of the fissure or the dentate line (whichever comes first). Lateral internal sphincterotomy has an excellent healing rate of approximately 95%. Common complications include recurrence in up to 6% and incontinence of flatus or stool (usually transient) in up to 17% of patients.[28]

When comparing lateral internal sphincterotomy to the historical four-finger anal stretch, lateral internal sphincterotomy is superior both in terms of recurrence and minor incontinence. However, a more standardised approach using pneumatic balloon dilation has shown healing rates of 83%, approaching those of lateral internal sphincterotomy, but with a lower incidence of long-term incontinence.[5] When comparing lateral internal sphincterotomy to topical glyceryl trinitrate, calcium channel blockers and botulinum toxin injection, lateral internal sphincterotomy is clearly superior in terms of healing rates. However, it has more complications in some but not all studies.[37-39] In recent years there has been growing interest in spinchter-sparring surgical techniques, predominantly that of fissurectomy either alone or in combination with other techniques (e.g. botulinum toxin injection or advancement flap). One observational study with good long-term follow-up reported that simple fissurectomy had a healing rate of 88%, a recurrence rate of 11.6% and an incontinence rate of 2.3%.[40] Although not as successful or durable as lateral internal sphincterotomy, some would argue this to be more than a fair trade-off given the preservation of the sphincter complex and hence much lower incontinence rate.

Advance flap surgery

Advancement flap surgery may be an acceptable first approach to low-pressure fissures. When encountered with a patient with an anterior fissure, it may be beneficial to perform anorectal manometry before proceeding with a treatment algorithm. Various studies have also evaluated advancement flap surgery for all chronic anal fissure types. The procedure typically involves a subcutaneous flap with an incision made from the anal verge extending caudally. The skin flap is then advanced into the anal canal and positioned to cover the anal fissure and sutured in place.

CONCLUSION

Anal fissure is a common problem. The pathophysiology is based on high sphincter pressures and management is generally aimed toward reducing anal pressures. Anal fissures can generally be treated with conservative management, but pharmacologic management with topical calcium channel blockers, topical nitrates, and botulinum toxin injection are reasonable options with minimal side effects and good cure rates. Lateral internal sphincterotomy remains the gold standard for definitive management of anal fissures, but comes with a risk of incontinence. Open or closed techniques can be used with similar healing and complication rates. Anal stretch should be abandoned in the management of anal fissure. Larger studies with longer follow-up are needed before recommendations can be made about various other treatment modalities for anal fissure. Particular attention must be paid to anterior anal fissures as they are typically associated with low anal pressures. These patients should undergo anorectal manometery testing preoperatively. Those patients with sphincter hypotonia who fail conservative management should undergo advancement anoplasty. Atypical anal fissures associated with Crohn's disease or HIV should be approached cautiously. However, recent data suggests that lateral internal sphincterotomy may be tolerated well in these patients when conservative management fails.

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