The role of antibiotics in treatment of acute anal fissure (comparative study).

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Abstract

One hundred twenty patients who had acute anal fissures were followed continuously for approximately one year. Half of them ( group A) (60) received antibiotics ( ciprofloxacin 500 mg 1*2 / day) with the treatment while other half ( group B) not received antibiotics , More than 55 % (33 patients ) of the group with antibiotic were cured nonsurgically within twenty one days (note: the use of antibiotics for 10 days only ). There was an 10 % (6 patients ) complication rate, consisting of abscesses and fistulas, necessitating surgical treatment. The recurrence rate following healing was 10 % (6 patients ) , these patients had recurrent fissure that healed in response to further conservative treatment.

while the other group ( group B) without antibiotics the cure rate was 30% ( 18 patients ) within 4 t 6 weeks and there was 20 % (12 patients ) complications rate , consisting of abscesses and fistulas , necessitating surgical treatment .the recurrence rate following healing 55% (10 patients ) .

One hundred and twenty consecutive patients with acute anal fissure with sever anal pain during and after defecation , some with bleeding per rectum and mucosal tear proved by clinical examination , all patients were male, age group from 20 to 40 years selected for this study from October 2019 to October 2020.

Patients enrolled for the study were randomized to two equal groups by using a computer-generated list. Both of them have same conservative treatment ( prescribed to use warm anal dilator with a nifedipine ointment 5 min twice daily for 4 weeks with stool softening drugs and analgesia ) but one group receive additive treatment represented by (ciprofloxacin tab 500mg 1*2/ day for 10 days), while the other group not had antibiotics in there treatment . Patients were clinically examined after 2, 4 and 8 weeks of treatment to evaluate if there was complete healing of the fissure.

There was statistical advantage in favor to use of antibiotic ( ciprofloxacin tab )

And this may be due to presence of subclinical infection associated with acute anal fissure may lead to delay in healing and develop of recurrence and complications.

Introduction

An anal fissure is a superficial tear in the skin distal to the dentate line and is a cause of frequent emergency department visits. In most cases, anal fissures are a result of hard stools or constipation, or injury. Anal fissures are common in both adults and children, and those with a history of constipation tend to have more frequent episodes of this condition. Anal fissures can be acute (lasting less than six weeks) or chronic (more than six weeks). The majority of anal fissures are considered primary and typically occur at the posterior midline. A small percentage of these may occur at the anterior midline. Other locations (atypical/secondary fissures) can be caused by other underlying conditions that require further workup. The diagnosis of an anal fissure is primarily clinical. Several treatment options exist, including medical management and surgical options.[1][2][3]

Etiology

Causes of anal fissures commonly include constipation, chronic diarrhea, sexually transmitted diseases, tuberculosis, inflammatory bowel disease, HIV, anal cancer, childbearing, prior anal surgery, and anal sexual intercourse. The majority of acute anal fissures is thought to be due to the passage of hard stools, sexually transmitted infection (STI), or anal injury due to penetration. A chronic anal fissure typically is a recurrence of an acute anal fissure. It is thought to be also caused by the passage of hard stools against an elevated anal sphincter tone pressure, with symptoms lasting greater than six weeks. Underlying conditions such as inflammatory bowel disease, tuberculosis, HIV, anal cancer, and prior anal surgery are predisposing factors to both acute and chronic atypical anal fissures. Approximately 40% of patients who present with acute anal fissures progress to chronic anal fissures.[4][5]
Epidemiology

Anal fissures present in any age group; however, they are mostly identified in the pediatric and middle-aged population. Gender is equally affected, and approximately 250,000 new cases are diagnosed each year in the United States.[6]

Pathophysiology

The anoderm refers to the epithelial component of the anal canal. The location is inferior to the dentate line. It is a very sensitive area to microtrauma and can tear with repetitive trauma or increased pressure. Due to the high pressures in this area, it can result in the delayed healing secondary to ischemia. The tear can sometimes be deep enough to expose the sphincter muscle. Together with spasms of the sphincter, this creates severe pain with bowel movements, as well as some rectal bleeding. It is well known that the most common location of an anal fissure is the posterior midline because this location receives less than half of perfusion compared to the rest of the anal canal. The perfusion of the anal canal has an inverse relationship to sphincter pressure. Other locations of anal fissures, such as lateral fissure, are indicative of an underlying etiology (HIV, tuberculosis, Crohn disease, ulcerative colitis, among others). The cause of this other location is not well known. Anterior fissures are rare and are associated with external sphincter injury and dysfunction.

History and Physical examinations

Patients with acute anal fissures present with complaints of anal pain that is worse during defecation. At times, there is associated bleeding with bowel movements but usually not frank hemorrhage. The pain usually persists for hours after defecation. Often, acute anal fissures may be misdiagnosed as external or internal hemorrhoids. Therefore, a thorough
physical exam should be performed to delineate between the two. Patients with chronic anal fissures will have a history of painful defecation with or without rectal bleeding that has been ongoing for several months to possibly years. Associated constipation is the most common factor involving chronic anal fissures, and patients will provide a longstanding history of hard stools. Patients with underlying granulomatous diseases such as Crohn disease, among others, will sometimes provide a history of chronic anal pain during defecation that is intermittent rather than constant over an extended period.

The physical exam of the patient with an anal fissure should involve the most comfortable position for the patient. Literature suggests the best position is the prone jackknife position where the patient lies prone, and the bed is folded so that the patient is flexed at the hips. The bed typically used to achieve this position is usually in an operating room or procedure room. Therefore, the best way to achieve this position in the acute care or office setting would be to have the patient bend over the exam table. However, many times, an adequate physical exam can be achieved by having the patient in a lateral decubitus position. It is imperative that physical manipulation of the anus or rectum via digital exam should be kept to a minimum, and instrumentation such as anoscopy should never be used.

An anal fissure will appear as a superficial laceration in the acute presentation, usually, longitudinal extending proximally. Bleeding may or may not be present. The fissure and sometimes the entire anal sphincter may be extremely tender to palpation. In thin patients, this laceration is usually easily identified; however, in obese patients, it may not be as identifiable. In an obese patient, gently pressing on the anterior or posterior anal sphincter may reproduce the pain, and a diagnosis can be made.
In chronic anal fissure, there may be a tear large and deep enough to expose the muscular fibers of the anal sphincter. Also, due to the repeated injury and healing cycle, the edges sometimes appear raised, and thickening of tissue at the distal ends of the tears may be present, which is called a sentinel pile. Granulation tissue may or may not be present, depending on the chronicity and the stage of healing.

**Evaluation**

If the patient has chronic recurrent anal fissures, an examination under anesthesia is recommended to help diagnose the exact cause and sometimes treat the patient. Evaluation of both acute and chronic anal fissures initially involves determining if it is a primary or secondary anal fissure. As described earlier, a primary or typical anal fissure occurs in the posterior or anterior midline, and an atypical or secondary anal fissure occurs in any location other than a primary anal fissure. If an atypical or secondary anal fissure is encountered, conditions such as Crohn disease should be immediately ruled out. It is worth noting that patients with Crohn or other underlying conditions can have anal fissures located at the typical/primary locations.

**Treatment / Management**

The initial treatment of anal fissures is with medical interventions. Frequent sitz baths, analgesics, stool softeners, and a high-fiber diet are recommended. Prevention of recurrence is the primary goal. Adequate fluid intake is also helpful in preventing the recurrence of anal fissures and is strongly encouraged. If conservative management with dietary changes and laxatives fail, other options can be used, including topical analgesics such as 2% lidocaine jelly, topical nifedipine, topical nitroglycerin, or a combination of topical nifedipine and lidocaine compounded by another
medication. Topical nifedipine works by reducing anal sphincter tone, which promotes blood flow and faster healing. Topical nitroglycerin acts as a vasodilator to encourage increased blood flow to the area of the fissure, increasing the rate of healing. While both have been shown to be effective treatments, topical nifedipine is regarded to be superior to topical nitroglycerin in two ways. First, nifedipine has been found to result in a higher healing rate compared to nitroglycerin. Second, it resulted in fewer side effects, as nitroglycerin frequently causes headaches and hypotension. If patients use nitroglycerin, it is recommended that they apply the ointment in a seated position and refrain from standing too quickly. Patients should also be advised to avoid medications such as sildenafil, tadalafil, and vardenafil while using nitroglycerin. [7][8][9]

Prognosis

Acute anal fissures in low-risk patients typically do well with conservative management and resolve within a few days to a few weeks. However, a percentage of these patients go on to develop CAF, which requires pharmacological treatment or surgical management. Over 90% of patients undergoing surgical management achieve cure within 3 to 4 weeks post-operatively. [10]

Results:

In this study all patients were male gender, the mean age was (28.9 years old) and the standard deviation (8.447) as shown in table (1) below.

Mean of age of patients with anal fissure (table 1)

<table>
<thead>
<tr>
<th>Age</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.9</td>
<td>± 8.447</td>
<td></td>
</tr>
</tbody>
</table>
In group A we use antibiotic (ciprofloxacin) with medical conservative treatment for 10 days, we notice that the cure rate was (55%), the complications rate (abscess & fistula) was (10%), the recurrence rate was (10%), some of cases not cured and need surgical treatment (25%) as shown in table (2).

Table(2) clinical fate of patients with anal fissure treated with AB

<table>
<thead>
<tr>
<th></th>
<th>cure</th>
<th>total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>yes (%)</td>
<td>no (%)</td>
</tr>
<tr>
<td>Patients treated</td>
<td>55</td>
<td>45</td>
</tr>
<tr>
<td>with AB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>complications</td>
<td>yes (%)</td>
<td>no (%)</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>90</td>
</tr>
<tr>
<td>recurrence</td>
<td>yes (%)</td>
<td>no (%)</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>90</td>
</tr>
<tr>
<td>need of surgery</td>
<td>yes (%)</td>
<td>no (%)</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>75</td>
</tr>
</tbody>
</table>

While the other group of patients (group B), we take same number of patients with acute anal fissure and use same medical conservative treatment but without use of antibiotics (ciprofloxacin) and the results were as follow:

The cure rate (30%), the complications rate (abscess & fistula) was (20%).

The recurrence rate was (17%) and the cases that need surgical treatment to cure was (33%) as shown in table (3).
Table (3) clinical fate of patients with anal fissure not treated with Antibiotics

<table>
<thead>
<tr>
<th>Patients not treated with AB</th>
<th>Cure yes (%)</th>
<th>no (%)</th>
<th>total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30</td>
<td>70</td>
<td>100</td>
</tr>
<tr>
<td>Complications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes (%)</td>
<td>20</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Recurrence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes (%)</td>
<td>17</td>
<td>83</td>
<td>100</td>
</tr>
<tr>
<td>need of surgery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes (%)</td>
<td>33</td>
<td>67</td>
<td>100</td>
</tr>
</tbody>
</table>

After the comparison of the results of both groups (A & B) we notice that there was high significance of antibiotic use with medical conservative treatment in case of acute anal fissure as shown in table (4) below

Table (4) the association of use of AB and clinical variables

<table>
<thead>
<tr>
<th>Use of antibiotics</th>
<th>Yes (%)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cure rate</td>
<td>55</td>
<td>30</td>
</tr>
<tr>
<td>Complications rate</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Recurrence rate</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>Need for surgery rate</td>
<td>25</td>
<td>33</td>
</tr>
</tbody>
</table>

\[
X^2 = 13.6 \ (P < 0.004) \text{ Highly significant}
\]

Discussion:

Medical or pharmacological treatment should be aimed at achieving transitory relaxation of the internal anal sphincter, thereby resolving hypertonia and improving the vascularization of the mucosa of this area, but with the subsequent recovery of the normal baseline tone, thereby avoiding the risk of incontinence this study agree with (11, 12).
There are several drugs, such as calcium channel blockers (CA), captopril and diltiazem mainly, nitric oxide donors (glyceryl trinitrate [GTN]) and botulinum toxin (BT).

In this study and after review of the results we found that the use of antibiotics systematically with medical treatment of acute anal fissure was significant in cure rate, recurrence rate and complications rate, in another study done by (11) they use local antibiotics with treatment and there was significant effects on cure rate but the recurrence rate was 50% and no effect on complications.

In (12) found subcutaneous tract at the base of the fissure in almost all the patients and hypothesized sub-clinical infection as the reason for causing symptoms in chronic fissure-in-ano. Similar with study (13), local application of povidine-iodine solution showed to improve symptoms in chronic fissure like with the [14]. In it was demonstrated that a short course (5 days) of oral antibiotics (ciprofloxacin 500 mg plus ornidazole 500 mg) gave significant symptomatic relief in up to 90% patients [15] mentioned that this aimed. However, this relief was not sustained if constipation was not strictly avoided. Subsequently, (16), it was shown that local application of antibiotics cream (ornidazole with or without povidine-iodine) for 3 months in addition to the above regimen (a short course of oral antibiotics plus avoidance of constipation, local application of Diltiazem gel was recommended if anal sphincter spasm was present) sustained the symptomatic benefits achieved and helped to cure the fissure in up to 90% of patients [13]. These findings are significant for two reasons. First, they highlight that infection can have an important role in etiopathogenesis of chronic fissure-in-ano. Secondly, high success rate of conservative management is encouraging, especially against the background of high complications of standard surgical treatment (LIS).
Substances and drugs used
nifedipine ointment
diclofenac tab
ciprofloxacin tab
movicol powder
vitamin C tab

References:


