

Comparison of lateral anal spincterotomy and 0.2% Glyceryl trinitrate (GTN) in the treatment of chronic anal fissure

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Abstract

Background and objective of the study: Anal fissure is a very painful condition. The trauma occurs through defecating hard stool or liquid stool with the hyper-tonicity causing anal pain with or without bleeding is the primary feature of anal fissure. In this study we compare the success rate of the two different treatment modalities by dividing the patients into 2 groups, group I: 0.2% GTN (Glyceryl trinitrate) (GTN), group II: lateral spincterotomy.

Material and Methods: A comparative retro-spective study was conducted at surgical department of Jinnah Medical College Hospital between March-2019 to February-2020. Eighty (80) patients were included in this study which were divided into two groups. 1st group receive 0.2% GTN and second group underwent lateral sphincterotomy for chronic and fissure. 40-patients were included in each group. Assessment was done on the basis of cessation of disease sfeatures after twelve weeks of treatment: bleeding per rectum, perianal pain and constipation.

Results: In group I (0.2% GTN CREAM): 73 % patients were completely healed and another 18% healed with mild perianal pain and pruritus. In group II (lateral sphincterotomy): 73% patients were healed without any symptom, while 0.2% healed with mild perianal pain and pruritus.

Keywords: Chronic anal fissure, lateral sphincterotomy, bleeding per rectum, perianal pain and constipation.

Introduction:

An anal fissure is a linear tear in the anal mucosa. A chronic anal fissure is a common problem in general population. This disease affects adult population. In the chronic state, the lack of oxygen and blood circulation is the primary cause of spasm of sphincter muscles. The hard stool cause bleeding and irritation. Treatment with local ointments enhances the blood flow towards anus and rectum by relaxing the fissure. To date, there are different medicines available but Glyceryl trinitrate (GTN) is an effective medicine to relax the internal anal sphincter and provide ease during defecation. But this treatment is temporary and the fissure may recur. Lateral sphincterotomy is a permanent therapeutic approach for curing chronic and fissure. This is a surgical approach with rapid healing and high suc-

cess rate. This approach is usually considered as the second-line treatment and applied to those who have failed medicinal therapy. This study includes the general overview of anal fissure, causes and different therapeutic approaches with the benefits of Lateral sphincterotomy in healing of chronic anal fissures.

Literature Review: Anal Fissure is the tear drop-shaped breach in the mucosa extending up to the dentate line from anal verge. The fissure is visible on clinical per rectal examination. Trauma occurs due to passage of hard stools with the hyper-tonicity causing anal pain with or without bleeding. Numerous studies reported that anal fissure occurs in adults. Men and women are affected equally.

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Fissure is considered to be chronic if it is present for >8 weeks, the changes in this condition are sentinel skin tag & hypertrophic papilla. Many studies showed that fissure mostly develop at the zone of the distal end of the anus. Further to this, maximum females are reported to have the anal fissures at the zone of posterior midline. However, anterior midline anal fissure cases are least documented in females.³

The causes frequently documented in inducing anal fissures are dry and hard stools, frequent & loose stools, anal intercourse, the straining during childbirth, Inflammatory bowel diseases like Crohn's disorder, etc., long term inflammation in intestines, Syphilis and poor blood supply in the anal zone. These conditions affects the anodermal perfusion, symptoms include fresh bleeding, pain, and irritation.⁴

First line of treatment in the chronic anal fissure is high fiber diet and increase fluid intake. This softens the stool. Sitz bath is also recommended. This treatment is adopted for decades for anal fissure. Sitz bath restores & increases blood flow to the internal anal sphincter.

Medicines like nitroglycerine ointment, hydrocortisone, Cortizone 10, diltiazem are very common for treating chronic anal fissure. These medicines usually decrease irritation, enhance blood flow to the region, assist in recovering inflammation. Topical anti analgesic ointment is also given for pain relief apart from these, botox injection or other calcium channel blocking injections can also be given for the treatment which works at relaxing the (sphincter) and cure anal fissure.⁶

The above-mentioned medicines treating anal fissure have temporary effects. After discontinuing, pain, difficulty in defecation with an increase in the tone of the sphincter is also noticed. The effective treatment for chronic anal fissure is surgery; the therapy is called lateral internal sphincterotomy. This technique is also used when the medicinal approach for curing chronic anal fissure has failed. Many studies suggested that 96% of people recovered within 4 weeks who under-

went lateral internal sphincterotomy. In the present era, this approach is more adapted for the effective treatment of anal fissures of chronic state.⁷

Lateral sphincterotomy is done under local or general anesthesia. Using a blade, the internal anal sphincter (a ring-like muscle controlling anus) is transacted. This causes the relaxation of internal anal sphincter. It also improves blood circulation to the region which assists in healing. After surgery, sitz bath are recommended which helps in healing by controlling infection, increasing blood circulation, and reducing irritation. The person usually recovers within three to four weeks after surgery. People having metabolic diseases like diabetes, hyperlipidemia, hypertension, stress, take more time in healing. The adult is reported to recover in a couple of weeks.⁸

Lateral anal sphincterotomy has long term benefits, almost all patients recovered in a short period of time from this approach of treatment without any serious complication. Besides, this approach offers immediate relief from pain and also prevents successive bleeding, irritation. In addition to this, lateral sphincterotomy dilates the anal sphincter and in turn increases the blood flow towards the lining of the anus as well as improvement of bowel movement.⁹

A chronic anal fissure is a common disease influencing both men and women. The statistics suggest that about 0.11% (1.2 of 1000 individuals) are diagnosed with chronic anal fissure every year. 1 in 350 adult individuals report chronic anal fissures. Studies suggested that anal fissure is the adult-onset disease and is completely curable.¹⁰ For anal fissure, the chronic stage is considered when the patient has the anal fissure for more than eight weeks. Anal fissure majorly influences defecation.¹¹

An anal fissure is a longitudinal tear in the anoderm. In the acute phase, the sitz bath, increase fiber diet with excessive water intake resolves fissure. However, in chronic state, the series of medicinal treatment cure this disease. In certain condition, surgery is recommended.¹²

The general causes reported are the injury of the anal grooves due to bowel movement, stretching of the anal canal which can be influenced by child birth, tight muscles of anus, rough or hard bowel movement, prolonged diarrhea, loose or consistent bowel movement, lack of blood flow towards anorectal region are considered the general causes to develop anal fissures.¹³ In chronic state anal fissure ultimately influences defecating process which causes bleeding, pain for several hours, inflammation of anal region and irritation are common. The signs are; cracks visible on parting the buttocks, fissure can be felt and visible, the sub-cutaneous layer of the anus is inflamed and bright red, with hypertrophied anal papilla and skin tag.

The primary aim of chronic anal fissure treatment is anal dilation. Traditionally, chronic anal fissure is treated with surgically transecting the internal sphincter ring which allows the normal blood flow. In addition to this, sitz bath is highly recommended to treat chronic fissure. At present, this remedy is still followed by medicinal therapy to cure chronic anal fissure.^{15,16}

Adding fiber-enriched supplements like fruits and vegetables cause softening of stools which in turn results inflammation to resolve, high fluid intake regularly creates a soothing effect in the large intestine, which eventually enhances the blood circulation and relaxation of internal sphincter, as a result there is less straining during defecation. In addition to this, several medicines are also available to treat patients suffering from chronic anal fissure.

0.2% Glycerin trinitrate (GTN) is the topical ointment usually recommended for chronic anal fissure therapy. GTN donates nitric oxide whose prime role is relaxation of internal sphincter (ring of anal internal sphincter). Pharmacologically, Glycerin trinitrate is a vasodilation, relaxing vascular smooth muscles causing dilation of both venous and arterial vessels in the region of anus and rectum.¹⁷

The chronic anal fissure is fibrosed due to poor blood circulation and oxygenation. The GTN is

normally recommended to apply on a tear drop-shaped fissure twice or thrice a day. This causes the dilatation of blood vessels around the anus and releases the pressure of internal sphincter which result in less pain on defecation. Several studies suggested that there are no side effects reported for this ointment.¹⁸

Glycerin trinitrate 0.2% is effective in treating chronic anal fissures with adopting a healthy lifestyle. For instance, avoiding alcohol, smoking, bed meal and adding fibers in diet by consuming more fruit and vegetables. Medicine merely contributes to local symptoms give temporary relief and are not effective for long term use.

Many studies proposed that this medicine simply assists in releasing pain however does not help in healing anal fissure of chronic state. Mostly, surgery is performed to remove anal fissure and get rid of this disease permanently.¹⁹

The GTN treatment is a long treatment and carries the risk of recurrence of disease upon completion of treatment. Mostly, 6 to 8 weeks treatment is normally given with GTN. The GTN treatment softens the anal sphincter not completely cure the fissure. However, lateral Sphincterotomy is a highly effective treatment and also considered as permanent treatment approach. This treatment is a surgical procedure carried out under local anesthesia. In this procedure, ring of the internal anal sphincter is incised using a blade or diathermy current. This results in immediate relief of symptoms like pain bleeding and straining at stool, increases blood flow of the area and healing of fissure.

GTN is the vasodilator and effective during the time of treatment, on withdrawal there is relapse of symptoms, and reversal of fibrosis of sphincter muscles, needing more straining of hard stool. The dryness of anus causes the damage to anal mucosa bleeding and irritability. However, this is documented that 96% of individuals cured within 4 to 5 days who underwent lateral Sphincterotomy approach of treatment for chronic fissures. The incision of the internal sphincter ring releases the pressure and allows

Table 1: Demographic information and clinical features of anal fissure

Group I: 0.2% GTN cream given			Group II: Lateral sphincterotomy		
Gender:	Frequency	Percent	Frequency	Percent	
Male	25	62.5%	Male	16	40.0%
Female	15	37.5%	Female	24	60.0%
Total	40	100.0%	Total	40	100.0%
Age:					
< than 30 years	9	22.5%	< than 30 years	1	2.5%
30 – 39 Years	12	30.0%	30 – 39 Years	29	72.5%
40 – 49 Years	16	40.0%	40 – 49 Years	8	20.0%
50 – 59 Years	3	7.5%	50 – 59 Years	2	5.0%
Total	40	100.0%	Total	40	100.0%
Clinical features: Bleeding rectum					
Yes	29	72.5%	Yes	28	70.0%
No	11	27.5%	No	12	30.0%
Total	40	100.0%	Total	40	100.0%
Clinical features: Perianal pain					
Yes	36	90.0%	Yes	37	92.5%
No	4	10.0%	No	3	7.5%
Total	40	100.0%	Total	40	100.0%
Clinical features: Constipation					
Yes	35	87.5%	Yes	37	92.5%
No	5	12.5%	No	3	7.5%
Total	40	100.0%	Total	40	100.0%

the significant blood circulation at anorectal zone, relieve stool defecting discomforts and other associated problems like excessive pressure needed to pass hard stool or watery stool related irritation.

The lateral Sphincterotomy is considered as safe and effective treatment without any major complication and almost few to no chances of anal fissure redevelopment whereas the GTN treatment or any other medicinal approach for chronic anal fissure treatment is time-consuming, temporarily effective with more chances of disease reoccurrence risk because of the presence of fissure at anal region.

Material and Methods:

Objective of the study is to assess the comparative treatment outcome of lateral sphincterotomy and 0.2% GTN (Glyceryl trinitrate (GTN) in the treatment of chronic anal fissure.

Two groups of patients suffering from chronic

anal fissure were selected on the basis of purposive convenient sampling. Each group had 40-patients of both gender of all age groups.

The study was conducted at Jinnah Medical College Hospital, between March 2019 to Feb 2020.

The independent variables were: Bleeding per rectum, perianal pain and constipation.

Dependent variable were outcome, result, cure.

Data was analyzed through SPSS and Excel software.

Inclusion & exclusion criteria: All patients presented with features of chronic anal fissure like perianal pain, bleeding per rectum and sentinel tag are included in this study. Patients presented with symptoms of acute fissure, IBD, anal papilla, warts and ano rectal masses once excluded from this study.

Result:

Gender wise in the first group (0.2% GTN cream) male patients were more (63%) while in group II (lateral sphincterotomy) female patients were more (60%). Male patients belong to different age groups (from less than 30 years to 49 years) while females were predominantly between 30 – 49 years. Bleeding rectum, perianal pain and constipation were prominent features in both the groups.

In the first group (0.2% GTN cream) after two weeks treatment 65% patients reported perianal itching and pain which persisted even after 6-weeks. But after 12-weeks all the symptoms including perianal itching and pain were absent in 73% patients and they were declared healed. Another 18% patients healed with mild perianal pain and pruritus. 5%-patients relapsed and another 5% did not responded even after 12-weeks.

In group II (lateral sphincterotomy) after 2-weeks of treatment 40% patients reported perianal itching and pain and another 40% anal bleeding and painful discharge. After six weeks

Table 2: Follow up after the treatment

Group I: 0.2% GTN cream given			Group II: Lateral sphincterotomy		
Follow up 2 weeks					
	Fre- quency	Per- cent		Fre- quency	Per- cent
Peri anal itching and pain	26	65.0	Peri anal itching and pain	16	40.0
Anal bleeding and painful discharge	8	20.0	Anal bleeding and painful discharge	16	40.0
Mild constipation and pruritus ani	6	15.0	Mild constipation	5	12.5
Total	40	100.0	Pruritus ani	3	7.5
			Total	40	100.0
Follow up 6 weeks					
Peri anal itching and pain	26	65.0	Mucus discharge with peri anal pain	12	30.0
Anal bleeding and painful discharge	8	20.0	Peri anal pain and itching	11	27.5
Mild constipation	6	15.0	Itching and mild discharge	3	7.5
Total	40	100.0	Normal anal tone with no pain	2	5.0
			Mild bleeding and discharge	9	22.5
			No discharge present	3	7.5
			Total	40	100.0
Follow up 12 weeks					
No symptoms. Fissure Healed	29	72.5	No symptoms. Fissure Healed	29	72.5
Healed with mild peri anal pain and pruritus	7	17.5	Healed with mild peri anal pain and pruritus	8	20.0
Relapse of symptoms	2	5.0	Relapse of symptoms	3	7.5
Same treatment for one year. No response	2	5.0	Total	40	100.0
Total	40	100.0			

Table 3: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.957	.976	20

Table 4: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.980 ^a	.961	.958	.16667	.961	297.300	3	36	.000	1.250

a. Predictors: (Constant), Constipation, Bleeding Rectum, Perianal Pain

b. Dependent variable: Follow up 12 weeks

mucus discharge with peri anal pain was reported by 40%, peri anal pain and itching was reported by 28% and mild bleeding and discharge was

reported by 23% patients. After 12-weeks 73% patients declared healed without any symptom, while 20% healed with mild perianal pain and pruritus.

The reliability statistics show that the study is 97.6% reliable. In model summary (for both the groups) R square (96.1%) and adjusted R square (95.8%) indicate that all the factors taken in the study describe the result with almost 96% accuracy. The Durbin Watson value of 1.25 indicates that there is a relationship between the independent variables absence of constipation, bleeding per rectum, perianal pain and the dependent variable outcome (healing). The significant value of zero in ANOVA indicates that the result is significant.

Discussion:

Though, there are different medicines available to treat chronic fissure but gave timely effects and with high disease reversing potential. Therefore, safe and effective treatment can be obtained via lateral sphincterotomy. This therapeutic approach has a 96% chance of recovery in a short period without any major complication along with the quick release of defecation discomfort. Physicians besides knowing the advantageous effects of lateral sphincterotomy, still give priority to medicinal therapeutic approach for chronic anal fissure which is time-consuming and contained least curing ability. The lateral sphincterotomy should be the priority of the Physicians or the consultants for chronic and fissure treatment. Doing so can save time and money of the patients.

A chronic anal fissure is a common disease, almost 1 out of 350 individuals are living with this disease. People besides knowing and bearing pain associated with this disease and overlooked the proper treatment cause the emergence of other complications associated with this disease. For instance, low blood count due to loss of blood while passing hard stool or liquid stool having hypertonicity causes rupture of blood vessels leading bleeding and discomfort. The discomfort can be few to many hours depending on the stat of chronic anal fissure. To date, sev-

Table 5: ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	24.775	3	8.258	297.300	.000 ^b
	Residual	1.000	36	.028		
	Total	25.775	39			

a. Dependent Variable: Follow up 12 weeks

b. Predictors: (Constant), Clinical feature: Constipation, Clinical Feature: bleeding rectum, clinical feature: perianal pain

eral medicines have been discovered inclusive of GTN (glyceryl trinitrate) 0.25%, this medicine is effective and a topical ointment and applied to fissure cause the dilation of vessels, releasing the pressure of sphincter ring as well as offers ease in stool defecating process.

This disease is an adult-onset disease, the poor diet and less water consumption is one of the significant factors contributing to the development of anal fissure. Over the globe, this metabolic ailment is common, to reduce this disease burden at a global level, People should provide education for anal fissure, sign, and symptoms, causes, treatment approach including surgery, and delays in treatment causing other complication. Giving awareness among the young population can significantly reduce the number of patients for this disease.

Conclusion:

Chronic anal fissure, a common disease, considered as an adult-onset disease, influencing males and females both. Though, there are different medicines available to treat chronic fissure but they give temporary relief effects and with high recurrence of the disease. Therefore, safe and effective treatment can be obtained via lateral sphincterotomy. This therapeutic approach has a 96% chance of recovery in a short period without any major complication along with the quick release of defecation discomfort. Physicians besides knowing the advantageous effects of lateral sphincterotomy, still give priority to medicinal therapeutic approach for chronic anal fissure which is time-consuming and contained least curing ability. The lateral sphincterotomy should be the priority of the Physicians or the consultants for chronic anal fissure treatment.

Doing so can save time and money of the patients.

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Dr. Sikandar Ali Mahesar, collected the references and helped in discussion writing.

Prof. M. Farooque Umar, critically review the article and made useful changes

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