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Conservative management of acute fissure in ANO and conversion into chronic fissure: A comparative study

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ABSTRACT

Background: The aim of the study was to choose best method for the management of acute fissure-in-ano, by comparing among zinc oxide cream and lidocaine ointment and conversion of acute fissure into chronic fissure-in-ano. **Aims and Objectives:** The aim of the study was to compare the effect of zinc oxide cream and lidocaine ointment in acute fissure and conversion of acute fissure into chronic fissure-in-ano requiring surgery. **Materials and Methods:** Two hundred patients who were diagnosed with acute anal fissure between November 2021 and November 2022 at MGM Medical College and M. Y. Hospital were undertaken for this prospective randomized trial. All cases randomized into two groups. Group 1 where the patients of acute anal fissure who applied 15% of zinc oxide cream twice a day. Group 2 where the patients would apply 5% of lidocaine ointment twice a day. Healing rates, pain relief, recurrences, changes in symptoms after the treatment, and complications were recorded. **Results:** There was no statistical difference among groups in terms of age and gender. The healing and symptomatic relief with the conservative method for acute anal fissure was significantly much more. Recurrence rate was very less in symptomatic group. There was a significant reduction in conversion of acute anal fissure into chronic anal fissure with the use of conservative management. **Conclusion:** Conservative management is better treatment option for acute fissure-in-ano with reduced conversion into chronic fissure-in-ano.

Key words: Zinc oxide cream; Acute anal fissures; Lidocaine ointment

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INTRODUCTION

An anal fissure is one of the most common diseases of the anal region and is an ulcer in the form of a linear cut or tear in the mucosa lining the anal canal. The most incessant site for anal fissure is midline posteriorly followed by midline anteriorly. Anal fissure is more common in men while it is exceptional in youngsters and old. It causes extreme agony during passing flatus and stools. The pathogenesis of ongoing anal fissure remains deficient but mostly are related with a high resting external anal sphincter tension and decreased perfusion at the posterior midline site because of tenacious hypertonia of the inside anal sphincter. Medical and surgical treatments have been mainly used in the treatment of fissures. Surgery has typically been used to treat chronic anal fissures, which is an effective and routine operation that heals 90–95% of the time.[1] There have been a variety of pharmacological sphincter relaxants introduced with promising outcomes, reducing the need for surgical intervention. Incontinence due to flatus and fecal soiling are distressing consequences of sphincterotomy, and some of them had delayed wound healing and disease recurrence.[2] To date, 15 pharmacological treatments have been evaluated to treat chronic anal fissure disease, according to a review by Nelson et al.[3] Zinc repairs tissues and facilitates quick healing of wounds and is a necessary trace element for the human body.[4] Zinc can be administered orally or topically.[5] Zinc oxide pomade was used for the skin irritations,

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external ulcers (decubitus, varicose, and diabetic), sunburn, non-infected wounds, and burns.[6] The aim of the study was undertaken to evaluate and compare the effectiveness of zinc oxide, lidocaine in acute anal fissure, and conversion into chronic fissure-in-ano.

Aims and objectives

The aim of the study was to compare the effect of zinc oxide cream and lidocaine ointment in acute fissure and conversion of acute fissure into chronic fissure-in-ano requiring surgery. Primary objective: The primary objective of the study was to choose best method for the management of acute fissure-in-ano. Secondary objective: The secondary objective of the study was to compare the benefits of zinc oxide cream and lidocaine ointment in acute anal fissure.

MATERIALS AND METHODS

Source of data

All cases of acute anal fissure admitted in the Department of Surgery, MGM Medical College and MY Hospital, Indore. This prospective study was done for a limited period of 1 year.

Method of collection of data study design

The study design was prospective and comparative study.

Study period

The study period was from November 2021 to November 2022.

Place of study

The study was done in the Department of Surgery, MGM Medical College and MY Hospital, Indore.

Sample size

The sample size was 200 cases.

Inclusion criteria

The study included patients who were aged between 18 years and 65 years with acute fissure-in-ano.

Exclusion criteria

The study excluded patients with hemorrhoids, Crohn's disease, tuberculosis, sexually transmitted disease, cancer patients, and pregnant and lactating women.

All patients in study underwent a detailed history taking including general examination and investigations. Patients were categorized into groups 1 and 2.

Group 1

Patients were instructed to sit in warm sitz baths thrice a day for 10–15 min at a time for 6 weeks, after drying themselves, apply 15% zinc oxide cream the size of a rice grain around the anus and up to 1 cm into the anal canal twice a day.

Group 2

Patients were also instructed to sit in warm sitz baths thrice a day for 10–15 min a day for 6 weeks and were told to apply 5% lidocaine ointment the size of a rice grain around the anus and up to 1 cm into the anal canal twice a day.

Both the groups were instructed to have high-fiber diet, and stool softeners were prescribed. All patients were invited for controls at 3 and 6 weeks and were evaluated for symptoms (pain, bleeding, and itching), physical examination, and complications. Recovery was considered the absence of symptoms and the absence of fissures during physical examination. Patients with improvement were evaluated for recurrence after 3 months and at 6 months.

Assessment tools

The assessment tools were (a) visual analog pain scale; (b) pain during defecation, (c) burning in anal region, (d) wound infection, (e) recurrence, and (f) per rectal digital examination.

The healing of the fissures was assessed visually, and the intensity of the pain was assessed from a visual analog score. The healing was defined as a complete disappearance of the fissure on examination. Each patient was supplied with a pain score chart and he/she was educated on how to daily mark the level of pain on it. These charts were graded from 0 to 100, and they were marked at one end as 0 (no pain) and at the other end as 100 (worst pain). The disease was termed as recurrent if either the symptoms and/or the fissure reappeared 1 month after the 6-week course of topical application.

Statistical analysis

The data were initially entered into the customized pro forma and then transferred to Microsoft Excel for analysis. Statistical software IBM SPSS was used for calculating the P-values. Chi-square test was applied for comparing the groups. A $P<0.05$ was considered statistically significant. The final data were presented in the form of tables and graphs.

RESULTS

In our study, age of patients was mostly similar in both the groups (Table 1), and pain was the main clinical feature, further followed by bleeding per rectum, constipation, and discharge per rectum (Table 2).

- Group-1: 15% zinc oxide cream given
- Group-2: 5% lidocaine ointment given.

Table 1: Demographic data

Demographic data	Group -1 (n=100)	Group -2 (n=100)
Male	47	51
Female	53	49
Age in years (Range)	18–65	18–65
Age: Mean (SD)	38.97 (13.937)	40.17 (13.086)

Table 2: Clinical findings

Clinical findings	Group-1 (n=100)	Group-2 (n=100)
Pain	90	60
Bleeding per rectum	86	53
Constipation	67	34
Discharge	58	24

Complete healing of the fissure occurred in 92 patients after treatment with zinc oxide cream as compared to 65 post-lignocaine ointment treatment.

DISCUSSION

Anal fissure is a painful linear ulcer formed in the anal mucosa between the mucocutaneous junction and the linea dentate most commonly at posterior aspect of anal canal.[7] It is one of the most common anorectal diseases that can be seen in any age group. It is most commonly observed in patients in 30s and 40s age groups.[8] Ay et al., in their study reported a mean age of 35.1±11.3 years, while in our study, the mean age of the patients was 38.97±12.11 years.[9] In our study, the age and gender of the patients were in accordance with the literature.

Location of fissure

The most popular theory on the development of anal fissure posits that their development is due to ischemia.[10] Autopsy studies most commonly showed fissures in the posterior aspect of the distal anal canal as there is reduced blood flow in this region.[11] This is especially pronounced in patients with fissures was studied in study done by Acheson and Scholefield which supports our study finding that 6 O'clock position is the most common location for fissure.[12]

Anal tone

In almost all patients with chronic anal fissure, the anal canal resting pressure is high, which decreases blood flow from the sphincter to the anal mucosa and impairs the healing of the fissure and increasing chronicity.[13] The main aim in treatment of fissure is to reduce the anal tone created by the anal sphincter mechanism, to increase blood flow, and to improve fissure healing, according to the study done by Ho and Ho.[14] In our study, maximum patients have increased anal tone which is comparable with the above study.

Medical treatment/conservative management

In many medical facilities, GTN is used as the initial treatment of chronic anal fissures. However, adverse effects such as tachyphylaxis and headache have been reported.[15-21] Botulinum toxin (BT) acts by inhibiting the release of acetylcholine from the presynaptic terminals. Nelson et al., reported that overall BT recurrence was around 40–50% and recovery was 67.5% in all BT-based studies.[3,22,23] BT has complications such as anal incontinence (5–10%) and perianal thrombosis. From above studies, we have noted that each of the methods such as BT, nitric oxide (GTN), and topical calcium channel blockers are effective; our study showed that the recovery rates were very high with the medical treatments (lidocaine and zinc oxide) done for acute anal fissure. Zinc oxide and lidocaine application in the treatment of anal fissure: zinc repairs tissues and helps in quick healing of wounds and is one of the necessary trace elements in the human body. Zinc can be administered orally or topically.[5] In Ay et al., study, zinc oxide, lidocaine, hot water, and lateral internal sphincterotomy for fissure-in-ano: randomized controlled study, zinc was chosen for its anti-inflammatory properties and as an agent that facilitates tissue healing and tissue repair and thus zinc oxide was compared with lidocaine ointment.[9] Recovery rate of acute anal fissure with treatment with zinc oxide cream was much higher as compared to lidocaine ointment application. This suggests that reduction in the sphincter pressure alone also leads to recovery in patients. Other studies have shown that in groups administered with GTN and lidocaine for anal fissure treatment, the patients reporting relief of symptoms is higher than the rate of recovery, this shows that, even though relief from symptoms is achieved, the fissures do not heal.[8,13] This brings to mind the need for a treatment that not only reduces sphincter spasms but also facilitates healing of fissure. The main goal of anal fissure treatment is relieving anal sphincter pressure, facilitating wound healing, and relieving inflammation in the region.[24] It was for this reason that anal sphincter pressure was decreased with sitz baths and a pharmacologic agent to improve healing such as zinc oxide was chosen in this study. Even though higher recovery rates were achieved with patients treated with zinc oxide to patients treated with lidocaine, the difference is not statistically significant. We assume that, for improving recovery rates, the use of pomades reducing anal sphincter pressure (such as diltiazem, ISDN, BT, and GTN) in addition to zinc oxide pomades can be more beneficial. Therefore, from the above study, we come to know that zinc oxide and lidocaine are effective in acute anal fissure and early conservative management reduces the conversion into chronic anal fissure.

Table 3: Pain

Pain in anal region	After zinc oxide	After lignocaine	P-value
Pain present	90	60	0.0001
Pain Absent	10	40	

Table 4: Bleeding per anum

Bleeding per anum	After zinc oxide	After lignocaine	P-value
Bleeding present	86	67	0.0015
Bleeding absent	14	33	

Table 5: Constipation

Constipation	After zinc oxide	After lignocaine	P-value
Constipation present	67	34	0.0001
Constipation absent	33	66	

Table 6: Discharge

Discharge per anum	After zinc oxide	After lignocaine	P-value
Discharge present	58	24	0.0001
Discharge absent	42	76	

Table 7: Fissure healing

Fissure healing	After zinc oxide	After lignocaine	P-value
Fissure healing present	92	65	0.0001
Fissure healing absent	8	35	

In our study as shown in Table 3, pain was relieved in patients using lignocaine as compared to zinc oxide. In Table 4 bleeding was relieved more in patients using lignocaine. In Table 5 constipation was relieved in patients using lignocaine. In Table 6 discharge was relieved in patients using lignocaine and zinc oxide as well. In Table 7 overall fissure healing was best seen in patients using zinc oxide.

Surgical treatment

Surgical treatment includes fissurectomy, anal dilatation, posterior sphincterotomy, closed lateral internal sphincterotomy, open lateral internal sphincterotomy, and flap applications. Most commonly used surgical treatments are lateral internal sphincterotomy and anal dilatation.[25] In our study, we have treated patients of acute anal fissure by conservative management using hot sitz bath, high fiber diet, laxatives, zinc oxide cream, and lidocaine ointment, which healed acute fissure-in-ano and reduced the conversion of acute fissure into chronic anal fissure reducing the requirement of surgical intervention.

Limitations of the study

The study was done for a limited period of 1 year on a limited number of patients. We were comparing two conservative treatments (zinc oxide and lidocaine) for acute anal fissure; we found out that there was less compliance with the conservative treatment. It was a single-center study.

CONCLUSION

200 patients of acute anal fissure have enrolled in the study, in which patients were put into different groups by simple randomization. The patients treated with zinc oxide cream with sitz bath have shown a higher recovery rate. The patients treated with lidocaine ointment with hot sitz bath have shown recovery slightly less as compared to patients treated with zinc oxide cream. This study shows full recovery in patients treated with conservative management for acute fissure-in-ano with reduced recurrence rates and reduced conversion of acute fissure into chronic fissure and reducing requirement of surgical intervention.

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