Topical Combination of Nifedipine with Lidocaine is a Promising Medical Treatment for Anal Fissure

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Abstract

Background: A fissure consist of crack or tear in the vertical axis of the anal canal between the anal verge and the dentate line. Anal fissure is the most common cause of sever anal pain and bleeding. Anal fissure is an elongated ulcer in the anoderm below the dentate line, and is commonly located posteriorly due to more adherence of the anoderm to the underlying tissue in the posterior midline, so the blood supply is significantly low as shown by the Doppler flowmetry study. Anal fissure is treated by two ways either medical or surgical treatment or both.

Objective: To evaluate the healing response of the anal fissure to topical application of nifedipine with lidocaine.

Patients and Methods: A randomized prospective study of one hundred patients who presented with anal fissure to outpatient surgical clinic in Al-Diwaniyah teaching hospital. The patients were divided into two groups. The first group involve 40 patients (15 males and 25 females) with acute anal fissure; the second group 60 patients (25 males and 35 females) with chronic anal fissure. Both groups were treated with the topical application of nifedipine and lidocaine 3 times daily for 6 weeks, and more prolonged therapy (up to 8 weeks) was applied for resistant cases.

Results: Both groups registered good response to topical therapy; the healing response was 85%. The healing response of those with acute anal fissure was better and faster than patients with chronic anal fissure.

Conclusion: Anal fissure can be simply and effectively treated medically without the risk of incontinence associated with lateral internal sphincterotomy.

Key words: Anal fissure, chemical sphincterotomy.

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Received: 31th October 2018

Accepted: 21th November 2018

https://doi.org/10.26505/DJM

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Introduction

Anal fissure is the most common cause of sever anal pain and bleeding. Anal fissure is an elongated ulcer in the anoderm below the dentate line and is commonly located posteriorly due to more adherence of the anoderm to the underlying tissue in the posterior midline, so the blood supply is significantly low as shown by the Doppler flowmetry study. Twenty five percent of a women and 8% of a men have anterior fissure [1-7]. One major cause for the formation of anal fissure is the passage of hard faces lead to tearing of the mucosa with it's associated pain and bleeding. The pain of

anal fissure is intolerable and always disproportionate to a severity of physical lesion. It may be so severe that the patients may avoid having meals and therefore defecation for days. This lead to more hardening of the stool, which will farther tear the anoderm during defecation[8, 9].

This ulcer is ischemic ulcer and is due to hypertonicity of internal anal sphincter due to pain and spasm of sphincter, this will cause a vicious cycle which can lead to chronic anal fissure. Chronic anal fissure have traditionally managed with lateral internal sphincterotomy or anal dilatation sphincterotomy; however this has been associated with incontinence in up to 35% of patients. Furthermore, this does not take into account the normal weakening of the sphincter with age as well as the possibility of the need for future anorectal surgery or obstetrical trauma[10, 11, 12].

Lateral internal sphincterotomy has the risk of incontinence which can be lifelong to even young otherwise healthy person. Dilatation of the anal canal has also been associated with sphincteric tears and subsequent incontinence[10, 13,14].

More recently, less invasive strategies have been adopted to induce sphincter relaxation. Topical agents including nifedipine reduce internal sphincter pressure and increase blood supply to ischemic ulcer by decreasing the internal anal sphincter tone. Also the topical agents as nifedipine have anti-inflammatory action. Lidocaine, is the most common topical anaesthetic for anal fissure, which break the vicious cycle of pain[15,16,17].

During pregnancy and following childbirth the fissures occur as a superficial split in anterior anoderm and may progress to a chronic anal fissure[9].

A typical fissure may be multiple, off the midline, large and irregular, these may be caused by inflammatory bowel disease, local or systemic malignangy, venereal infection (syphilis, HIV) trauma, tuberculosis, and chemotherapy[1, 3].

Aim of the study to evaluate the healing response of the anal fissure to topical application of nifedipine with lidocaine gel.

Patients and Methods

This is a prospective randomized study in the surgical outpatient clinic of AL-Diwaniyah teaching hospital for a period of one year (January 2017 - January 2018). One hundred patients had been included in the study. A card Table (1) is made for each patient. Involved in the study are, the details of the condition (duration of symptoms, pain severity, the presence or absence of bleeding and its severity). The card also mention the findings at the time of first presentation and after treatment to assess response to treatment. The frequency of visit for assessing the response to treatment is every two weeks.

According to the symptoms and signs, the patients were divide into two groups, the first group with acute anal fissure (15 males and 25 females) and second group with chronic anal fissure (25 males and 35 females).

The response was evaluated as for stopping or decreasing the bleeding, decreasing the pain, the relaxation of internal anal sphincter

and disappearance of the induration. The side effect of treatment were recorded during the course of treatment. Many limiting causes were encountered during the study, as poor patient compliance due to prolonged therapy, absence of anal manomatery to evaluate internal anal sphincter tone, no endo-anal Doppler U\S probe to evaluate revascularization of the anal fissure (ischemic ulcer). And absence of prolonged follow up to evaluate recurrence rate.

Statistical analysis

The statistical method followed for achieving the results are the percentages and numbers.

Table (1): Follow up treatment card formula.

Name		
Age		
Gender		
Phone NO.		
Symptoms duration		
1st visit	2nd visit	3rd visit
Pain (severity)		
Bleeding (severity)		
Findings on examination		
Anal sphincter tone (tight, relaxed)		
Indurated edge		
Skin tag		
Complications		
Headache		
Anal itching		
Palpitation		

Results

Two groups, the first group with acute anal fissure (15 males and 25 females) and second group with chronic anal fissure (25 males and 35 females). The healing response of acute anal fissure after (6 weeks) for males was 80% (12 patients) and for females was also 80% (20 patients), but after extended therapy to 8 weeks the healing response of acute anal fissure for males increased to 86.7% (13 patients) and for females were 92% (23 patients). Two males (13.3%) and two females (8%) of patients with acute anal fissure underwent surgery after 8 weeks of no response to therapy Tables(2-5).In chronic anal fissure the healing response after (6 weeks) for males were 56% (14 patients) and for females were 57.1% (20 patients), but after extended therapy (8 weeks) the healing response of chronic anal fissure for males increased to reach 80%% (20 patients) and for females were 85.7% (30 patients). Five males and five females with chronic anal fissure underwent surgery after 8 weeks of no response to therapyTables (2-5).

Table (2): Healing of lesions in male after 6 weeks.

	Healed	Not healed
Acute (15)	12 (80%)	3 (20%)
Chronic (25)	14 (56%)	11 (44%)

Table (3): Healing of lesions in male after 8 weeks.

	Healed	Not healed	No. of patients underwent surgery
Acute (15)	13 (86.7%)	2(13.3%)	2 (out of 15)
Chronic (25)	20 (80%)	5 (20%)	5 (out of 25)

Table (4): Healing of lesions in female after 6 weeks.

	Healed	Not healed
Acute (25)	20 (80%)	5 (20%)
Chronic (35)	20 (57.1%)	15(42.9%)

Table (5): Healing of lesions in female after 8 weeks.

	Healed	Not healed	No. of patients underwent surgery
Acute (25)	23 (92%)	2 (8%)	2 (out of 25)
Chronic (35)	30 (85.7%)	5 (14.3%)	5 (out of 35)

The healing rate in response to topical therapy for 6 weeks in the acute setting for both males and females was high.

The healing rate in response to topical therapy for 6 weeks in the chronic setting for both males and females were low, but it increase significantly by extending the treatment course for further 2 weeks. This means topical therapy needs good compliance from the patient. As a whole, there is no statistical significant difference in the healing rate between acute and chronic lesions for both males and females. However the rate of healing of acute lesions is significantly higher than that of chronic ones after 6 weeks of treatment (80% vs 56% for males) and (80% vs 57.1% for females).

Discussion

For acute fissures, in our study the healing rate of acute fissure was 80% for both males and females. This is in compatible with a recent randomized study by Cook TA, Humphreys MM, Mc C Mortensen NJ. which showed that the topical use of nifedipine could achieve a healing rate of 95% of the patients[10].

Also our results are in accordance with a study done by antropoli et al. in which,141 patients were treated topically with nifedipine, every 12 hours for (3 weeks) the control group consisting of 142 patients received topical lidocaine and hydrocortisone gel, complete remission of acute anal fissure was achieved in 95% of

nifedipine – treated patients, as opposed to 50% of controls[18].

For chronic fissures, the healing rate following 8 weeks treatment was 80% for males and 85.7% for females. This is in accordance with these obtained by Farzaneh Golfam et al. who revealed a healing rate of 81.3% after extended therapy of topical treatment[19].

Another study done by Perrotti P et al. for the treatment of chronic fissures by topical nifedipine showed that a course of (8 weeks) nifedipine achieved 85.2% remission indicated by resolution of symptoms and healing of fissure[20].

Conclusions

Topical application of nifedipine and lidocaine is effective in treating acute and chronic anal fissures with a healing response rate reaching up to 85% after 8 weeks of treatment.

Recommendations

The use of topical therapy in the acute setting can prevent evolution of acute anal fissures to chronic anal fissure.

Treatment should be extending to 8 weeks as possible, as the healing rate increase significantly, and therefore can avoid lateral sphincterotomy with its associated risk of future incontinence.

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