

Review Article

Management of chronic anal fissures: a narrative review

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Received: 24 February 2020

Revised: 20 March 2020

Accepted: 21 March 2020

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ABSTRACT

Anal fissures are often encountered in surgical practice in both sexes. It is a distressing disease impacting quality of life and causes profound morbidity among those affected. If left untreated, it may lead onto perianal abscess or even malignancy in long standing cases. Surgery is the gold standard management for chronic anal fissures. Recently the widespread use of pharmacologic agents for chronic fissures has increased. The management of chronic anal fissures has migrated to an era of multifaceted approach. This narrative review looks into various studies spanning over a period of 16 years. Various articles were shortlisted and analyzed for efficacy of various treatment methods, their impact in hospital stay, quality of life improvement, recurrence rate and complications among various treatment methods. We concluded from this review, that open lateral internal sphincterotomy is still the gold standard method of treatment for chronic anal fissure. Among pharmacological agents, 2% diltiazem has the best effectiveness with good compliance rate. Modern surgical techniques like VY plasty can be reserved for special situations. We do not recommend the practice of manual anal dilatation.

Keywords: Chronic anal fissures, 2% diltiazem, Lateral anal sphincterotomy

INTRODUCTION

Anal fissure is defined as linear ulceration of the squamous lining of the distal anal canal. Acute fissure usually heals spontaneously within 4 weeks if primary. Chronic anal fissures are when patient has chronic pain for more than 6-8 weeks. Posterior anal fissures are more common than anterior in the ratio 10:1.¹ Chronic anal fissure is a middle age disease with high incidence between 30 to 50 years of age affecting both men and women equally.² Many tried to define chronic anal fissure with duration alone but it is now the presence of exposed internal anal sphincter fibers through the ulcer.³⁻⁵ Surgery has been the gold standard treatment of chronic anal fissure.⁵ Rate of healing and pain relief are the primary end points in deciding the efficacy of any treatment for chronic anal fissures. Generally, it is considered to

propose surgery as the first line therapy in stage IV fissures.⁶

Over the course of evolution, various treatment methods have been advocated in the management of chronic anal fissures. This narrative review aims at explaining the various treatment options available for chronic anal fissures and concludes with the possible best treatment option in majority of the situations.

PATHOPHYSIOLOGY

Direct anal canal trauma as a result of passage of hard stools was considered as the original cause of anal fissures.⁷⁻⁹ Though acute fissures may occur as a result of this process, the progress to chronic fissures was not clearly explained. Hence new hypotheses have paved way into better understanding the pathogenesis of chronic anal

fissures. The recent concept of high anal pressures due to constipation (internal sphincter hypertonia) which in turn leads to a state of ischemic hypoxia to the anal mucosa is widely accepted as the pathophysiology of chronic fissures.⁷⁻⁹ Hence the management of chronic fissures has migrated from loosening the stool consistency to reduce the internal sphincter hypertonia either surgically or pharmacologically.

OVERVIEW OF TREATMENT OPTIONS

As discussed above, the primary aim of management of chronic anal fissures is to reduce the sphincter hypertonia. This secondarily improves the blood flow via digital rectal arteries and help in ulcer healing. Various treatment modalities were proposed ranging from stool softeners to pharmacological agents and finally surgery.

Pharmacological agents include drugs like nitrates (ISDN or GTN), calcium channel blockers and even botulinum toxin. Surgery varies from manual anal dilatation to lateral anal sphincterotomy (gold standard) and recent surgical techniques like fissurectomy, VY advancement flaps etc.

METHODS

An electronic search on PubMed, EMBASE, Google Scholar was performed for a period ranging from January

2000 to December 2016 spanning 16 years. The MeSH terms used in this narrative review were ‘chronic anal fissure’ and ‘pharmacological agents’ or, ‘Surgery’, or ‘innovations’ was used in combination with 10 specific terms like diltiazem, botulinum toxin, GTN or ISDN, manual anal dilatation, lateral anal sphincterotomy, anoplasty, fistulectomy etc. Google Scholar was used for citation search for all included articles. A language exclusion of “English only” articles were placed and only such articles were included.

PHARMACOLOGICAL AGENTS

The Table 1 shows various studies spanning 16 years where usage of multiple pharmacological agents like nifedipine, nitrates, diltiazem and botulinum toxin have been studied. Among the various agents diltiazem and botulinum toxin have been found to have the most effect in terms of pain relief and ulcer healing. However, Smith et al describes the possibility of incontinence with long term usage of botulinum toxin. Though, diltiazem is associated with few complications like perianal itching etc, its compliance rate is very good (Samim et al).¹⁷ Nitrates and nifedipines are significantly worse in ulcer healing and also may lead to systemic side effects (Ala et al and Shrivatsav et al).^{16,18}

Table 1: Pharmacological agents.

Author of the study	Study design	Agent used	Outcome	Remarks
Carapeti et al¹⁰	Prospective comparative trail (30 patients in 2 groups of 15)	Topical 2% diltiazem vs 0.1% bethanecol	a) 67 % patients healed with diltiazem b) 60 % healed with bethanecol	Both equally effective (p<0.05)
Kocher et al ¹¹	Prospective double blind randomised, two centre trial (60 patients in 2 groups)	GTN vs 2% diltiazem	a) No significant difference between both groups in healing b) More headaches in GTN group (RR=2.06)	Recommends further studies
Scholefield et al¹²	Double blind, multicentre, randomised control trail (200 patients)	GTN (0.1% vs 0.2% vs0.4%) and placebo group	a) No statistical significance between placebo group and GTN group as a whole especially in acute fissures	Recommends revision of definition of chronicity
Smith and Friezelle¹³	Correspondence	Describes about long term use of botulinum toxin	NIL	Continued. Recommends Botulinum toxin should not be used indiscriminately as it can lead to incontinence (0-18%)
Nash et al¹⁴	Prospective clinical trial (2 years -112 patients)	2% diltiazem	a) 59% of patients required further treatment b) Compliance to	Recommends counselling of patients for possible secondary therapy

Continued.

Author of the study	Study design	Agent used	Outcome	Remarks
			therapy good, even though complications like perianal itch is 20%	in the form of surgery.
Katsinelos et al¹⁵	Randomised control trial (64 patients)	0.5% nifedipine vs sphincterotomy	a) 100% healing achieved in surgery group vs 96.7% in nifedipine group b) 50% complications in nifedipine vs 18.7% in surgery	Did not attain statistical Significance
Shrivastava et al¹⁶	Randomised clinical trail (90 patients)	2% diltiazem vs 0.2% GTN vs control group	Diltiazem is superior in pain relief and fewer complications	Recommends use of 2% Diltiazem (pain Improvement Statistically significant)
Samim et al¹⁷	Double blind randomised clinical Trial (134 patients)	2% diltiazem vs botulinum toxin	a) Both showed equal healing rated and pain resolution b) perianal itching is noted only in diltiazem group (p<0.012)	Botulinum toxin better than Diltiazem in short term, while long term both show equal efficacy. Study did not reach statistical significance
Ala et al¹⁸	Double blind randomised clinical trial (61 patients)	2% diltiazem vs 0.2% GTN	a) Healing better in diltiazem group (p<0.001) b) less side effects with diltiazem (p<0.001)	Recommends use of Diltiazem over GTN
Golfam et al¹⁹	Randomised control trial (130 patients)	Topical nifedipine vs oral nifedipine	a) Healing better in topical nifedipine (p<0.05) b) Side effects more in oral group	Recommends usage of only topical Nifedipine
Berkel et al²⁰	Randomised multicentre trial (60 patients)	ISDN vs botulinum	a) Less side effects and better healing in boutlinum group (p=0.028 and p=0.010)	Recommends usage of botulinum over ISDN. However recurrence rates are found to be higher in both groups

SURGICAL TECHNIQUES

Anal fissurectomy (Gabriel procedure) of excision of the anal fissure tissue. It is only removal of subcutaneous portion of the external anal sphincter with excision of sentinel tag, anal papillae if present.²⁸ In Germany it is still the therapy of choice.

Manual anal dilatation (MAD) is dilatation of anal canal with several fingers for some minutes under general anesthesia, this procedure is not controllable even when done by the same person as it involves stretching of external sphincter along with internal sphincters. Since

iatrogenic damage of sphincters can cause incontinence this procedure is no longer recommended.²⁹

Table 2 includes various studies comparing the effectiveness of open lateral anal internal sphincterotomies in long term healing and symptomatic relief in patients with chronic anal fissures. Though complications like infection, perianal abscess, flatus and maybe liquid stool incontinence can occur in patients, their incidence is very low and they are usually self-limiting. Surgical management results in lasting effects and long-term quality of life improvements in most patients with very few recurrence rates. Modern surgical techniques like fistulectomies with VY advancement

flaps, show promising results, but is best reserved for special cases. Manual Anal dilatation is obsolete and

should never be used as a single line therapy for the management of chronic anal fissures.

Table 2: Surgical techniques.

Author of the study	Study design	Technique used	Outcome	Remarks
Argor and Levandovsky²¹	Brief medical report (2340 patients)	Open lateral internal sphincterotomy	96 % healing rate with 1 % recurrence. Complications were minor like infections (1%), temporary incontinence (3%)	Open lateral internal sphincterotomy is still the gold standard
Wilkey et al²²	Prospective randomised controlled trial (76 patients)	Open Vs closed lateral sphincterotomy	a) No significant difference in both technique 9 96 % healing rate) b) Incontinence after sphincterotomy was not significant	Both surgical techniques equally effective
Giridhar²³	Prospective trial (60 patients)	2% diltiazem vs Sphincterotomy	a)100 % healing rate in surgical group as compared to 88% in diltiazem	Topical diltiazem can be a effective first line treatment. Internal sphincterotomy can be reserved for relapse or complicated cases.
Ankur Popat²⁴	Prospective Comparative Study(100 patients)	2% diltiazem vs Sphincterotomy	a) 100% healing in surgical group as compared to 89.4% in diltiazem	Gold standard treatment is still lateral anal sphincterotomy.
Sajith Babu²⁵	Prospective Comparative Study(70 patients)	2% diltiazem vs Sphincterotomy	a) 97.14% achieved healing in surgery group as compared to 68.7%	Surgery is superior to Diltiazem in all aspects of outcome except complication
Chambers et al²⁶	Prospective Clinical Trial (54 patients)	V-Y advancement flap	a) Wound healing achieved in	V-Y advancement flap helps in excellent wound healing , irrespective of previous treatment failures or chronicity of the disease
Ram et al²⁷	Prospective clinical trail	MAD VS lateral internal anal sphincterotomy	Recurrence and bowel control problems are more in MAD	MAD was not recommended

Instrumental anal dilatation seems to be a reasonable alternative to MAD because of its high success rates and the low number of complications. Sohn et al found a healing rate of 94% in chronic anal patients using 40 mm diameter balloon with a pressure of 1.5 for 5 mins among 66 patients.³⁰

CONCLUSION

Anal fissures are often encountered in surgical practice in both sexes. It is a distressing disease impacting Quality of life and causes profound morbidity among those affected. If left untreated, it may lead onto perianal abscess or even malignancy. The management of chronic anal fissures has migrated to an era of multifaceted approach.

Recommendations

Our recommendation from this narrative review are:

- Open lateral internal sphincterotomy is still the gold standard method of treatment for Chronic anal fissure.
- Among pharmacological agents, 2% Diltiazem has the best effectiveness with good compliance rate.
- Modern surgical techniques like VY Plasty can be reserved for special situations.
- We do not recommend the practice of Manual Anal Dilatation.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Sritharan H, Kumar NKA, Ibrahim MIS. Management of chronic anal fissures: a narrative review. *Int Surg J* 2020;7:1327-31.