



Comparative studies between medical and surgical treatments for chronic anal fissures: An article review

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Abstract

Anal fissure is a painful anorectal disorder with a tear in the anoderm, commonly caused by constipation. It accounts for 14-36% of anorectal disorders with lifetime risk of 11%. It causes severe discomfort and affects the quality of life. Chronic anal fissures (>6 weeks) are clinically associated with indurated margins, fibrotic base, exposed internal anal sphincter fibres, sentinel piles (skin tags) and hypertrophic anal papilla. The spasm of the internal anal sphincter leading to increased anal pressure, is the main reason for non-healing of fissure and chronicity. Treatment is aimed at relieving resting anal canal pressure and facilitating the blood flow for fissure healing. Medical treatment, termed as “chemical sphincterotomy”, includes commonly used topical agents like nitrates (0.2% glyceryltrinitrate), calcium channel blockers (2% diltiazem) and botulinum toxin injections. High fiber diet, fiber supplements, stool softeners, sitz baths and plenty of fluid intake are supportive treatments. Surgical treatment includes Lateral internal anal sphincterotomy (LIS) and anal dilatation; LIS being gold standard. This review includes five comparative studies between medical and surgical treatments for chronic anal fissures. Medical treatment involved twice daily topical application of glyceryltrinitrate/diltiazem, whereas surgical treatment involved LIS under spinal anaesthesia. The duration of follow-up was about 6-8 weeks. Complete pain relief varies between 64% to 92.5% with medical treatment, whereas 96% to 100% with surgical treatment. Fissure healing rates varies between 72% to 92.5% with the medical treatment, whereas 93% to 100% with the surgical treatment. Surgical treatment (LIS) has statistically significant better pain relief and fissure healing compared to medical treatment. Medical treatment is a safe first choice, but has high recurrence/failure rates. Diltiazem is preferable to glyceryltrinitrate. LIS is the most efficacious treatment with highest healing rates and lowest failure rates, but associated with self-subside complications like perianal hematoma or incontinence (9%).

Keywords: fissure-in-ano; chronic anal fissure; lateral internal sphincterotomy; glyceryltrinitrate; diltiazem; constipation

1. Introduction

Anal fissure is a painful anorectal disorder with a tear in the anoderm between the dentate line and the anal verge, commonly caused by constipation. It accounts for 14-36% of anorectal disorders with lifetime risk of 11%. It causes severe discomfort and affects the quality of life. Chronic anal fissures (>6 weeks) are clinically associated with indurated margins, fibrotic base, exposed internal anal sphincter fibres, sentinel piles (skin tags) and hypertrophic anal papilla. The spasm of the internal anal sphincter leading to increased anal pressure, is the main reason for non-healing of fissure and chronicity. Treatment is aimed at relieving resting anal canal pressure and facilitating the blood flow for fissure healing. Medical treatment, termed as “chemical sphincterotomy”, includes commonly used topical agents like nitrates (0.2% glyceryl trinitrate), calcium channel blockers (2% diltiazem) and botulinum toxin injections. High fiber diet, fiber supplements, stool softeners, sitz baths and plenty of fluid intake are supportive treatments. Surgical treatment includes Lateral internal anal sphincterotomy (LIS) and anal dilatation; LIS being gold standard.

This review includes five comparative studies between medical and surgical treatments for chronic anal fissures, wherein topical medical treatment (glyceryl trinitrate/diltiazem) is compared with the standard surgical treatment (LIS). Main areas of focus include pain relief,

fissure healing, complications, and recurrence.

Critical analysis of the articles

The studies involve patients with chronic anal fissure, having typical symptoms of painful defaecation, bleeding PR and constipation. Commonly affected age group is 31-40 years, with a male preponderance. About half of patients had sentinel skin tags. Upto 90% of chronic anal fissures are located posteriorly and 10% located anteriorly. In medically treated groups, topical agents (0.2% glyceryltrinitrate/2% diltiazem) were applied twice daily for a given period. Supportive treatment with high fiber diet, fiber supplements, sitz baths, stool softeners and plenty of fluid intake was provided to all the patients. Lateral Internal Sphincterotomy (LIS) was done under spinal anaesthesia in surgical group. Results were observed on regular follow-ups. Outcome measures including pain relief, fissure healing, complications, and recurrence were compared. Pain relief is compared by using visual analog scale (VAS) score and fissure healing is noted by complete epithelialization of fissure. Complications developed after LIS were transient and self-subside.

A study by Bansal AR ^[1] involves 50 patients, divided into two groups of 25 patients each. Group A was treated medically with topical 0.2% glyceryltrinitrate and group B was treated surgically with LIS. After 6 weeks of treatment, complete pain relief was seen in 64% (16 patients) of group

A and 96% (24 patients) of group B. Complete fissure healing was noted in 72% (18 patients) in group A and 100% (25 patients) in group B. In group A, 36% (9 patients) developed headache as side effect; while in group B, 4% (1 patient) developed perianal hematoma. 2 patients in each group developed recurrence at 3 months of follow-up. This study concludes that glyceryltrinitrate is a safe 1st line treatment for chronic anal fissures, which if fails, LIS is the treatment of choice.

A study by Awais Ghori *et al* [2] included 80 patients, divided into two groups of 40 each. Group A was treated medically with topical 0.2% glyceryltrinitrate for upto 7 weeks; group B was treated surgically with LIS. At the end of 7th week, the VAS gradually decreased in both groups but more significantly in group B than group A (p<0.05), hence it is inferred that patients treated surgically experienced statistically significant pain relief when compared to the patients treated with glyceryltrinitrate at the end of 7th week. Moreover, at 7th week, complete fissure healing was seen in 80% of group A and 100% of group B. The side effects included headache in 37.5% of glyceryltrinitrate group and perianal hematoma in 5% of LIS group. The study concluded that LIS is effective treatment for chronic anal fissures when glyceryltrinitrate fails.

A study done by Mohammad RM in Iran [3] included 190 patients, divided into three groups: group A with 63 patients, group B with 65 patients and group C with 62 patients. Group A was treated with topical glyceryltrinitrate; group B was treated with topical diltiazem and group C was treated surgically with LIS. Follow-up was done upto 8 weeks. Among medically treated groups, 7 from group A and 4 from group B were converted into surgical treatment. Pain relief was noted in 77% of group A, 83% of group B and 98% of group C. Fissure healing was noted in 74% of group A, 83% of group B and 94% of group C. 27% (17 patients) from group A developed headache as side effect, and 2 patients from group C developed transient flatus incontinence. No complications noted in group B. Recurrence at 1 year was seen in 17% of group A, 9% of group B and nil in group C. The study concludes that medical treatment is the first option for chronic anal fissures although surgery remains more effective. Diltiazem is better than glyceryltrinitrate due to lack of side effects. LIS is considered as gold standard treatment for chronic fissures.

A study done by Gosala RD [4] involved 80 patients, divided into two groups of 40 each. Group I was treated with topical 2% diltiazem and group II was treated surgically with LIS. Regular follow-up was done till 6 weeks and results observed. Pain relief was seen in 92.5% (37 patients) in group I and 100% (40 patients) in group II. Fissure healing rates were 92.5% (37) in group I and 97.5% (39) in group II. There was statistically significant difference in pain relief and fissure healing rates between diltiazem and LIS treatments. Bleeding per rectum was reduced in all the patients of both groups. Complications include headache (7.5%) and local irritation (12.5%) among group I; post-operative pain (35%), flatus incontinence (5%), bleeding PR (7.5%) and discharge (15%) among group II. Recurrence was noted in 7.5% (3 patients) of group I; no recurrence was seen in group II. Although Diltiazem had latency in clearance of symptoms and lesion, it has good healing rates, faster pain relief and minimal complications/adverse effects. LIS is reserved for recurrent fissures or those unresponsive with medical treatment.

Sabrina ME *et al* [5] have performed a review and network meta-analysis of randomized controlled trials (RCT) about operative and medical treatment for chronic anal fissures. They shortlisted 44 RCTs from PubMed database, involving 3268 patients overall. The RCTs were conducted between 1975 and 2015. Various treatment interventions were analyzed for primary outcome measures, i.e. healing and incontinence rates after a median follow-up of 2 months. Secondary outcome measure was long-term treatment failure rate.

Table 1

Treatment	Healing rates	Incontinence rates
Lateral Internal Sphincterotomy (LIS)	93.1%	9.4%
Anal Dilatation (DILA)	84.4%	18.2%
Fissurectomy &/or anoplasty (FIAP)	79.8%	4.9%
Botulinum toxin (BT)	62.6%	4.1%
Non-invasive treatment (NIT)	58.6%	3.0%

On network-analysis compared with NIT, the odds ratio (OR) at 95% confidence interval with respect to healing and incontinence is given as follows:

Table 2

Treatment	OR for Healing rates	OR for Incontinence rates
Lateral Internal Sphincterotomy (LIS)	9.9 (54-18.1)	6.8 (3.1-15.1)
Anal Dilatation (DILA)	8.6 (3.1-24.0)	16.9 (6.0-47.8)
Fissurectomy &/or anoplasty (FIAP)	3.5 (1.0-12.7)	3.9 (1.0-15.1)
Botulinum toxin (BT)	1.9 (1.1-3.5)	1.6 (0.7-3.7)

Random effects network meta-analysis were complemented by fixed effects as well as Bayesian models. It was concluded that medical treatment is safe initial management. LIS is the most efficacious treatment with highest healing rates and lowest failure rates, but compromised by high rate of post-operative incontinence (>9%). Given the trade-offs between risks and benefits, FIAP and BT may be considered as reasonably good alternatives for chronic anal fissure treatment.

Conclusion

Chronic anal fissure presents for a duration of >6 weeks with common symptoms like painful defaecation, bleeding PR and constipation. Commonly affected age group is 31-40 years, with a male preponderance. About half of patients have sentinel skin tags. Upto 90% of chronic anal fissures are located posteriorly and 10% located anteriorly. Medical treatment usually involved twice daily topical application of 0.2% glyceryltrinitrate or 2% diltiazem, whereas surgical treatment involved lateral internal sphincterotomy under spinal anaesthesia. The duration of follow-up was about 6 - 8 weeks. Pain relief was compared by using visual analog scale (VAS) score and fissure healing was noted by complete epithelialization of fissure. Complete pain relief varies between 64% to 92.5% with the medical treatment, whereas 96% to 100% with the surgical treatment. Fissure healing rates varies between 72% to 92.5% with the medical treatment, whereas 93% to 100% with the surgical treatment. Surgical treatment (LIS) has statistically significant better pain relief and fissure healing compared to

medical treatment. Medical treatment is a safe first choice, but has high recurrence/failure rates. Diltiazem is preferable to glyceryltrinitrate because it is free from side effect of headaches. LIS is the most efficacious treatment with highest healing rates and lowest failure rates, but associated with self-subside complications like perianal hematoma or incontinence (9%). Other treatment alternatives like botulinum toxin, fissurectomy with anoplasty, and anal dilatation have been observed in the meta-analysis. These procedures may be potentially studied further.

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