

## Observation Study Of Treatment In Chronic Anal Fissure By Different Modalities

1. **Dr. Mahendra Bendre**, Head of Unit & Professor, Department of General Surgery, Dr. D.Y. Patil Vidyapeeth, Hospital, Medical College & Research Centre, Pimpri, India
2. **Dr. Sumit Srivastava**, Resident, Department of General Surgery, Dr. D.Y. Patil Vidyapeeth, Hospital, Medical College & Research Centre, Pimpri, India.
3. **Dr Vinayak Kshirsagar**, Professor of Surgery, Dr D.Y.Patil Medical College and Hospital, Dr D.Y. Patil Vidyapeeth, Pimpri, Pune-411018, Maharashtra, India.
4. **Dr. Rushi Kumar Prabhubhai Kanani**, Resident, Department of General Surgery, Dr. D.Y. Patil Vidyapeeth, Hospital, Medical College & Research Centre, Pimpri, India.

### Corresponding Author

**Dr. Sumit Srivastava**, Resident, Department of General Surgery, Dr. D.Y. Patil Vidyapeeth, Hospital, Medical College & Research Centre, Pimpri, India.

### ABSTRACT:

**Background:** An anal fissure is one of the common anorectal disease resulting from a split or tear in the anal canal's skin, it causes pain, bleeding and emotional stress. There are medical and surgical treatment available for treating anal fissures, this study was aimed to compare lord's dilations and lateral internal sphincterotomy.

**Methods:** An observational study conducted in 64 patient general surgery department, all patients were treated by conservative management first and surgically if required. Lateral internal sphincterotomy or lord's dilatation were performed among study subjects by randomised process.

**Results:** Mean age of 64 study sample was 38.78 years (SD - 9.03 years), with 52 (81%) male and 12 (19%) female in study. All 64 subjects were treated by conservative first, while 54 (84.4%) required surgical management. There was no significant difference in mean duration of surgery, post-operative pain & duration of hospital stay between lords dilation lateral spinteretomy.

**Conclusion:** Conservative medical treatments are all effective methods that may reduce the need for surgery in many patients. Early pain alleviation and a high ulcer healing rate are provided by anal dilatation and lateral internal spinteretomy treatment, LIS is a safer option in terms of recurrence.

**Keywords:** Anal dilatation, Anal fissure, lateral internal spinteretomy

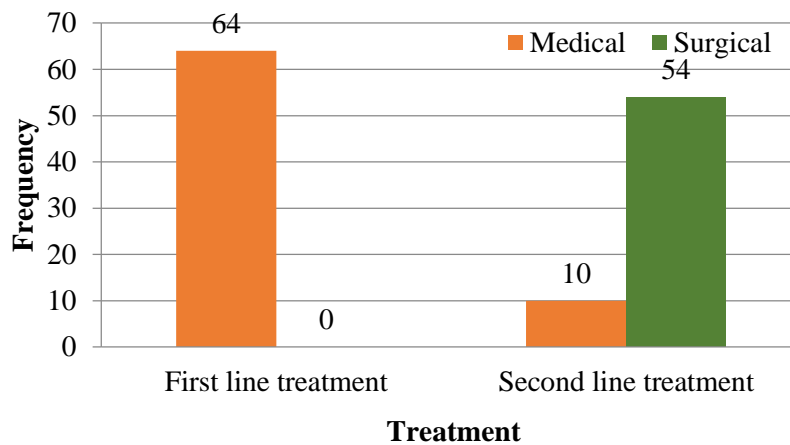
**INTRODUCTION:** Anal fissures cause bleeding on toilet paper, underwear, and in the toilet. Most chronic fissures are posterior midline, although 10% of women and 1% of men have them anteriorly. <sup>1-3</sup> Anal fissures occur 1 in 350 people, are equally common in males

and women, and are most common in adults 15–40.<sup>4</sup> Conservative therapy will focus on constipation treatment. Acute and chronic anal fissures should be treated non-surgically.<sup>5,6</sup> It includes topical nitroglycerin, diltiazem, and botulinum toxin are examples.<sup>7</sup> Other therapies include warm sitz baths, topical anaesthetics, high-fiber diets, and stool softeners.<sup>8,9</sup> After one to three months of medical treatment, anal fissures may require surgery. Not the first treatment. In the early 1990s, repeatable anal dilatation was effective with little side effects.<sup>10</sup> Anal dilation, or Lord's procedure, has fallen out of favour because to faecal incontinence.<sup>11</sup> Fissurectomy treats persistent anal fissures. In older, multiparous, normal-anal-tone, and anorectal surgery patients, several surgeons used this procedure to prevent incontinence.<sup>12</sup> Eisenhammer pioneered internal lateral anal sphincterotomy in 1951. The method immediately relieves symptoms by reducing pathologically elevated anal canal pressures.<sup>13</sup> Lateral internal sphincterotomy (LIS) is the preferred surgery for anal fissures due to its simplicity and 95% success rate.<sup>14</sup>

**METHODS:** Based on the selection criteria 90 patient attending general surgery OPD having anal fissure were screened for eligibility, all those 64 who fulfilled the inclusion criteria were eligible to participate in the study. The purpose of the study explained to patients. Informed written consent were taken prior to actual participation of patient into the study. Patient with grade IV haemorrhoids, high anal fistula or ischiorectal abscess, inflammatory bowel disease, anorectal malignancy etc. were excluded from study.

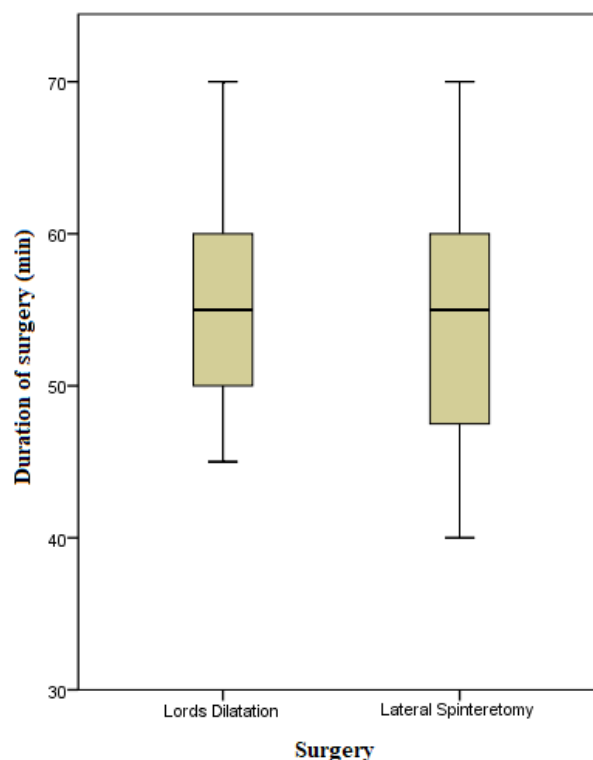
64 patients were given 8 weeks of topical ointment application (0.2% nitroglycerin or 2% diltiazem applied every 12 hours) followed by warm sitz bath constituted the medical treatment. Patient whose symptoms got relieved completely will be left for further data analysis and follow up while the remaining will be subdivided in left lateral internal sphincterotomy and lord's dilatation through a randomised process using block method. The medical records of the patients reviewed and demographic data (sex, age), medical history, referral symptoms and findings, first-second-fourth-eighth week examination findings, response to the treatment (pain relief and evaluation of the fissure, erythema and/or inflammation), side effects of the treatment and presence of recurrence of the disease were recorded and analysed.

**RESULTS:** Mean age of 64 study sample was 38.78 years (standard deviation - 9.03 years), with the highest 56 years and lowest 20 years. There was 52 (81%) male and 12 (19%) female in the study while 25 (39.06) % samples were from 31-40 years age group followed by 20 (31.25 %) subjects in 41-50 years age group. Painful defecation was most common complaint and it was present in all 60 (93.75%) subjects followed by bleeding (48, 75% subjects) and pruritus in anal region (27, 42.18% subjects). Constipation was present in 12 (18.75%) subject; some subjects were having more than one complaint. Posterior anal fissure was present in 45 (70%) of patients while 19 (30%) with anterior anal fissure.



**Image 1 : Bar diagram showing treatment given to study samples**

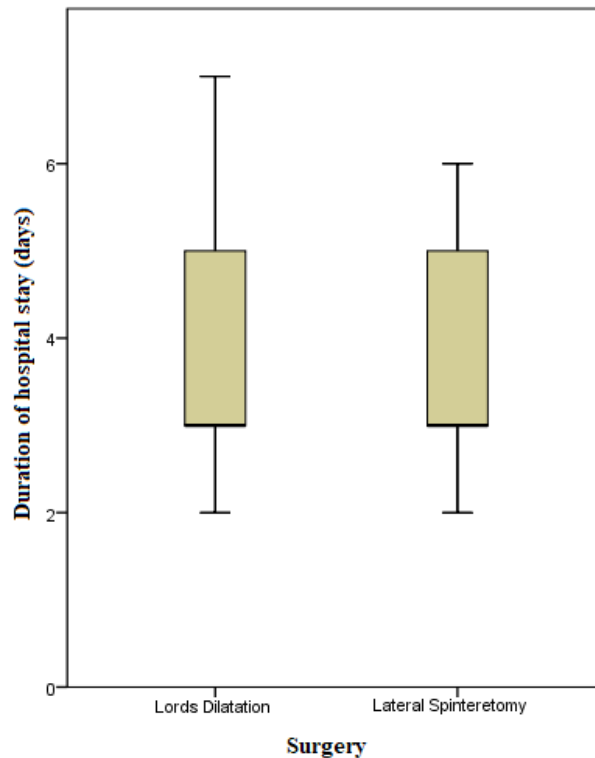
All 64 subjects were treated by conservative medical management first. 10 (15.6%) out of 64 subjects were continued medical management further while remaining 54 (84.4%) required surgical management. Medical management includes lignocaine ointment, laxatives, warm sitz bath, antibiotics (Anometro) ointment & oral pain killers etc. Lords dilatation and lateral spinteretomy was performed in 27 (50%) subjects each out of 54 required surgical treatments.



**Image 2: whisker box plot showing duration of surgery**

Mean duration for lords dilation ( $55.74 + 7.3$  min) was approximately similar with lateral spinteretomy ( $55 + 9.2$  min) and difference between them was statistically not significant ( $p = 0.744$ ).

Mean pain score after surgery on day 3 for lords dilation ( $1.26 + 0.86$ ) was approximately similar with lateral spinteretomy ( $1.41 + 0.84$ ) and difference between them was statistically not significant ( $p = 0.525$ ). Mean pain score after surgery on day 5 for lords dilation ( $0.81 + 0.73$ ) was approximately similar with lateral spinteretomy ( $0.67 + 0.73$ ) and difference between them was statistically not significant ( $p = 0.462$ ).



**Image 3: whisker box plot showing duration of hospital stay**

Mean duration of hospital stay for lords dilation ( $3.89 + 1.5$ ) was approximately similar with lateral spinteretomy ( $3.63 + 1.18$ ) and difference between them was statistically not significant ( $p = 0.479$ ).

Mean duration to resume routine activities after medical treatment ( $15.8 + 6.21$  days), lords dilation ( $16.81 + 5.2$  days) was approximately similar with lateral spinteretomy ( $14.3 + 4.6$  days) and difference between them was statistically not significant ( $p = 0.203$ ).

Mean cost of treatment for lords dilation ( $4667 + 1400$  rs) & lateral spinteretomy ( $4256 + 1003$  rs) was higher than cost of medical management ( $455 + 121$  rs) and difference between them was statistically not significant ( $p = 0.203$ ). It means cost of medical management is less than surgical treatment. 9 (14%) out of 64 subjects reported recurrence, 7 (25%) after lords dilatation and 2 (7.4%) after lateral Spinteretomy.

**DISCUSSION:** Anal fissure causes morbidity in otherwise healthy people. It causes pain, rectum haemorrhage, discomfort, and incapacity. Several pharmacological sphincter relaxants claim to work well, although surgery is still necessary. Lateral Internal Spinterotomy is the

gold standard for treating fissure-in-ano. In 1818, Boyer recommended sphincterotomy for anal fissures.<sup>14</sup> Since Eisenhammer launched LIS in 1959,<sup>13</sup> it's been the preferred therapy for fissure-in-ano. This research compares LIS with Lords dilation. In our research, 64 chronic anal fissure patients had surgery. Recurrence and incontinence were also analysed in detail. The research reports patient satisfaction and anal fissure healing.

Mean age of 64 study sample was 38.78 years (SD - 9.03 years, Min - 20, Max - 56), there were 52 (81%) male and 12 (19%) female in the study, While the mean age of patients in Samindra Nath Basak et al<sup>15</sup> was  $41.79 \pm 8.3149$  years with 63% female and 37% males.

The most prevalent complaint, which was present in 60 (93.75%) of the participants, was painful defecation, which was followed by bleeding (75% of the subjects) and anal pruritus (42.18% of the subjects). Similar findings were obtained in Samindra Nath Basak et al<sup>15</sup> study where pruritus (17.0%) and rectal haemorrhage (77.9%) were the two most frequent symptoms, with discomfort during faeces (97.4%) coming in third. These findings are comparable to those made by A. Tocchi et al.<sup>16</sup> and J.S. Khan et al.<sup>17</sup> in which patients with anal fissures complained of discomfort (96–100%), rectal bleeding (80%), and itching (39%).

Al-Thoubaity F et al<sup>18</sup> is worth highlighting that most patients (67%) had a posterior anal fissure, whereas substantially fewer patients had an anterior anal fissure. Similarly in our study posterior anal fissure was most common and it was present in 45 (70%) of patients, while anterior anal fissure was present in 19 (30%) of patients.

Internal sphincter hypertrophy and elevated anal sphincter resting pressure cause ischemia of the anoderm.<sup>19</sup> All 64 research participants were given conservative medical treatment initially. Out of 64 individuals, 10 (15.6%) needed further medical care, whereas the other 54 (84.4%) required surgical intervention. Lignocaine ointment, laxatives, a warm sitz bath, antibiotics (Anometro) ointment, and other medications are used in medical treatment. As a result, our research's success rate of medical care for anal fissure (15.6%) which was much lower than that of Giridhar CM et al study (88.46%).<sup>20</sup>

Out of the 54 patients who needed surgery, 27 (50%) had Lords dilatation and 27 (50%) underwent lateral sphincterotomy, both of which had a 100% success rate. Giridhar CM et al. also found 100% success rates in patients undergoing surgery.<sup>20</sup>

Disease management and therapy are contentious. Many studies propose conservative (such as habit regularisation) and medicinal therapy techniques as early treatment choices since they are noninvasive and does not involve complications such anal sphincter damage.<sup>21-22</sup> Calcium channel blockers (diltiazem) and glyceryl trinitrate (nitric oxide derivatives) are often utilised, as are botulinum toxin injections and anal dilatation.<sup>23-25</sup> These treatments reduce sphincter tone, relieve discomfort, and improve the fissure.

In our study mean duration for lords dilation ( $55.74 + 7.3$  min) was approximately similar with lateral spinteretomy ( $55 + 9.2$  min) and difference between them was statistically not significant ( $p = 0.744$ ). No similar studies found comparing duration of these two procedures but according to Dan Brennan lateral spinteretomy takes 30 min.<sup>26</sup>

A prospective clinical experiment was conducted by Araujo et al. with 190 patients in three groups to compare medical therapy (n: 128) to LIS (n: 62). The researchers found pain alleviation rates of 100% for LIS after the eighth week (93% after two weeks and 100% at the end of the eighth week).<sup>27</sup> Only seven percent of patients in the group who had LIS were

unhappy with the outcomes of their therapy, according to the findings of a research that compared the effects of Botox and LIS.<sup>28</sup> In a research conducted at a single centre, Salih et al. found that this rate was 1%.<sup>29</sup>

The difference in mean length of hospital stay between lords dilation (3.89 + 1.5) and lateral spinteretomy (3.63 + 1.18) was not statistically significant ( $p = 0.479$ ), indicating that they were roughly comparable. Due to the need of regular dressing changes, parenteral antibiotics, and analgesics, the fissurectomy group in the study by Ghose SS et al. required a minimum of six to seven days in the hospital after their procedure. The modified closed LIS group had an average length of hospital stay of just one to two days, while the closed LIS group had an average length of hospital stay of two to three days.<sup>30</sup>

The average cost of treatment for lateral spinteretomy (4256 + 1003 rs) and lords dilation (4667 + 1400 rs) was approximately similar and it was greater than the average cost of medical care (455 + 121 rs), and the difference was statistically significant ( $p = 0.00$ ). This indicates that medicinal management is less expensive than surgical care. According to the Central Government Health Scheme Pune rate list, an empanel hospital with NABH accreditation would charge 15,870 rupees for a fissurectomy, and 14,283 rupees for a fissurectomy with an internal sphincterotomy (source: cghspune.gov.in).

9 (14%) out of 64 subjects reported recurrence, 7 (25%) after lords dilatation and 2 (7.4%) after lateral Spinteretomy in our study. There is a chance of recurrence in anywhere from 1.3% to 25% of patients,<sup>31,32</sup> despite the fact that success rates of the LIS treatment continue to be high, as measured by the effective healing of the anal fissure. Additionally, Liang et al. came to the same conclusions, finding that the recurrence rate was just 4%.<sup>33</sup> In the current research, the anal fissure recurred in only two patients, which resulted in an extremely low recurrence rate of 0.3% overall.

**CONCLUSION:** In reviewing the recent developments in the treatment of chronic anal fissures, it is possible to draw the conclusion that conservative treatments such as those involving lignocaine, nitroglycerine, botulin toxin, or oral nifedipine are all effective methods that may reduce the need for anaesthesia and surgery in a significant number of patients. Patients who are not interested in having an operation performed on them might always be provided these alternatives instead. In the event that the condition returns or if conservative therapy is ineffective, surgical manipulation should be considered. In this particular research, men were more likely to be afflicted than females, and constipation was shown to be the primary risk factor. Furthermore, the majority of fissures were found in the posterior midline region. Early pain alleviation and a high ulcer healing rate are provided by anal dilatation and lateral internal spinteretomy treatment respectively. On the other hand, as compared to AD, it seems that LIS is a safer option in terms of recurrence.

## REFERENCES:

1. Jonas M, Scholefield JH. Anal Fissure. *Gastroenterol Clin North Am* 2001; 30: 167-181
2. Van Outryve M. Physiopathology of the anal fissure. *Acta Chir Belg* 2006; 106: 517-518

3. Utzig MJ, Kroesen AJ, Buhr HJ. Concepts in pathogenesis and treatment of chronic anal fissure--a review of the literature. *Am J Gastroenterol* 2003; 98: 968-974
4. Anal Fissure – Basics – Epidemiology". Best Practice. *British Medical Journal*. 23 April 2012. Retrieved 30 June 2012.
5. Nelson RL, Thomas K, Morgan J, Jones A (2012). "Non-surgical therapy for anal fissure". *Cochrane Database of Systematic Reviews*. 2 (2): CD003431.
6. Haq. Z.; Rahman, M.; Chowdhury, R.; Baten, M.; Khatun, M. (2005). "Chemical Sphincterotomy—First Line of Treatment for Chronic Anal Fissure". *Mymensingh Medical Journal*. 14 (1): 88–90. PMID 15695964.
7. Shao, WJ; Li, GC; Zhang, ZK (September 2009). "Systematic review and meta-analysis of randomized controlled trials comparing botulinum toxin injection with lateral internal sphincterotomy for chronic anal fissure". *International Journal of Colorectal Disease*. 24 (9): 995–1000.
8. "Anal Fissure – Treatment Overview". *WebMD*. Archived from the original on 5 October 2011. Retrieved 27 September 2011.
9. Poritz, Lisa Susan. "Anal Fissure Treatment & Management". *Medscape*. Archived from the original on 31 October 2011. Retrieved 27 September 2011.
10. Sohn, N; Weinstein, M.A. (January 1997). "Anal dilatation for anal fissures". *Seminars in Colon and Rectal Surgery*. 8: 17–23.
11. Becker, Horst Dieter (2005). *Urinary and Fecal Incontinence: An Interdisciplinary Approach*. Springer Science & Business Media. p. 105.
12. Zeitoun JD, Blanchard P, Fathallah N, Benfredj P, Lemarchand N, de Parades V. Long-term outcome of a fissurectomy: a prospective single-arm study of 50 operations out of 349 initial patients. *Annals of Coloproctology*. 2018 Apr;34(2):83.
13. Herrero JA, Henning W, Sharma N, Deppen JG. Internal Anal Sphincterotomy. *InStatPearls [Internet]* 2020 Nov 10. StatPearls Publishing.
14. "Anal Fissure". *The Lecturio Medical Concept Library*. Retrieved 28 June 2021.
15. Dr. Samindra Nath Basak, Dr. Debarshi Jana. STUDY ON CHRONIC ANAL FISSURE FOR PARTIAL LATERAL INTERNAL SPHINCTEROTOMY. *INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH*. Volume-9 | Issue-1 | January-2020 | PRINT ISSN No. 2277 – 817
16. A. Tocchi, G. Mazzoni, M. Miccini, D. Cassini, E. Bettelli, S. Brozzetti, Total lateral sphincterotomy for anal fissure, *Int. J. Colorectal Dis*. 19 (3) (2004) 245–249.
17. J.S. Khan, N. Tan, D. Nikkhah, A.J. Miles, Subcutaneous lateral internal sphincterotomy (SLIS)—a safe technique for treatment of chronic anal fissure, *Int. J. Colorectal Dis*. 24 (10) (2009) 1207–1211.
18. Al-Thoubaity F. Safety and efficacy of the treatment of chronic anal fissure by lateral internal sphincterotomy: A retrospective cohort study. *Annals of Medicine and Surgery*. 2020 Sep 1;57:291-4.
19. Nelson R. Non surgical therapy for anal fissure. In: *The Cochrane Library*. Issue 3. Chichester: Wiley; 2009.

20. Giridhar CM, Babu P, Rao KS. A comparative study of lateral sphincterotomy and 2% diltiazem gel local application in the treatment of chronic fissure in ano. *Journal of clinical and diagnostic research: JCDR*. 2014 Oct;8(10):NC01.
21. Ayantunde AA, Debrah SA. Current concepts in anal fissures. *World J Surg* 2006;30:2246-60.
22. Shrestha SK, Thapa PB, Maharjan DK, Tamang TY. Effectiveness of 0.2% glyceryl trinitrate and 0.5% nifedipine in the treatment of chronic anal fissure. *J Nepal Med Assoc* 2017;56:149-52.
23. Khan MS, Akbar I, Zeb J, Ahmad S, Khan A. Outcome of 0.2% Glyceryl trinitrate cream versus 2% diltiazem cream in the treatment of chronic anal fissure. *J Ayub Med Coll Abbottabad* 2017;29:280-4.
24. Salari M, Salari R, Dadgarmoghadam M, Rezaiyan MK, Hosseini M. Efficacy of egg yolk and nitroglycerin ointment as treatments for acute anal fissures: A randomized clinical trial study. *Electron Physician* 2016;8:3035-41.
25. Gaj F, Biviano I, Candeloro L, Andreuccetti J. Anal self-massage in the treatment of acute anal fissure: A randomized prospective study. *Ann Gastroenterol* 2017;30:438-41.
26. Arroyo A, Perez F, Serrano P, Candela F, Calpena R. Long-term results of botulinum toxin for the treatment of chronic anal fissure: Prospective clinical and manometric study. *Int J Colorectal Dis* 2005;20:267-71.
27. S.E. Araujo, M.M. Sousa, P.P. Caravatto, A. Habr- Gamai, I. Cecconello Early and late results of topical diltiazem and bethanechol for chronic anal fissure: a comparative study *Hepato-Gastroenterology* 2010;57(1):81-85
28. Montes, B.B., Irkorucu, O., Akin, M. et al. Comparison of Botulinum Toxin Injection and Lateral Sphincterotomy for the Treatment of Chronic Anal Fissure. *Dis Colon Rectum* 2003;46(3):232-237.
29. A.M. Salih. Chronic anal fissures: Open Lateral internal sphincterotomy result; a case series study. *Annals of medicine and surgery* 2017;15(6):56-58.
30. Ghose SS, Chowdhury MD, Dharmamer MY. A comparative study to see the outcome in patients suffering from fissure-in-ano following modified closed lateral internal sphincterotomy, closed lateral internal sphincterotomy, and fissurectomy. *Journal of Current Research in Scientific Medicine*. 2021 Jan 1;7(1):9.
31. H. Abcarian, Surgical correction of chronic anal fissure: results of lateral internal sphincterotomy vs. fissurectomy—midline sphincterotomy, *Dis. Colon Rectum* 23 (1) (1980) 31–36.
32. T.H. Lewis, M.L. Corman, E.D. Prager, W.G. Robertson, Long-term results of open and closed sphincterotomy for anal fissure, *Dis. Colon Rectum* 31 (5) (1988) 368–371.
33. J. Liang, J.M. Church, Lateral internal sphincterotomy for surgically recurrent chronic anal fissure, *Am. J. Surg.* 210 (4) (2015) 715–719.