



Non-standardized surgery lateral internal sphincterotomy: Is there a consensus?

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ABSTRACT

Objective: Lateral internal sphincterotomy (LIS) is considered the gold standard surgical treatment for chronic anal fissures. However, substantial variation exists in the surgical techniques applied. This study aims to evaluate practice differences among surgeons performing LIS and to assess whether a consensus has been established.

Material and Methods: An anonymous online survey was conducted to assess surgeons' technical approaches to LIS. Data were collected using a 24-question survey targeting surgeons from various countries.

Results: A total of 207 surgeons (131 from Türkiye, 76 from other countries) responded. The majority were male (73.3%) and between 40 and 64 years of age (64.7%). Most participants (70%) had more than 10 years of surgical experience, and 55% were affiliated with academic centers. The open technique was preferred by 73.6% of respondents, while 21.4% opted for the closed method. Partial sphincterotomy was favored by 66%, followed by complete (21%) and tailored (12%) approaches. Substantial heterogeneity was noted in bowel preparation, patient positioning, incision type, and management of skin tags or hypertrophied papillae. Only 6% reported routine use of anorectal manometry. Variations were more prominent across countries than between demographic groups. The principal finding of the study is the lack of a standardized approach to LIS across international surgical communities.

Conclusion: There is no standardized approach to LIS among surgeons. Surgical technique preferences vary significantly and appear to be influenced more by geographic practice location than by individual surgeon characteristics such as age, gender, or experience.

Keywords: Chronic anal fissure, lateral internal sphincterotomy, international survey

INTRODUCTION

A chronic anal fissure is a common proctological disease that significantly impairs quality of life (1). The treatment expectation for this benign pathology is a permanent and effective solution with minimal side effects. Treatment options range from non-operative medical therapies to surgical interventions. While medical treatment is often used as the initial approach, surgery is usually reserved as a last resort. The most commonly currently used surgical treatment methods are lateral internal sphincterotomy (LIS), fissurectomy, and advancement flaps.

According to many societal guidelines, LIS is the surgical treatment of choice for chronic anal fissures (2,3). Furthermore, many studies show that surgical treatment of chronic fissures with LIS has a higher healing rate and improves quality of life compared to conservative and medical treatments (4,5).

Despite its widespread use and acceptance as the gold standard surgical treatment, significant variations in LIS technique persist. These include differences in incision type, extent of sphincterotomy, preoperative preparation, and adjunctive procedures. This study aimed to identify such variations in practice among surgeons and evaluate the potential for standardization and consensus.

MATERIAL and METHODS

Study Design and Survey Distribution

Ethics committee approval was obtained for the study (Ankara University- application number: 2022000546/i09-575-22, date: 13:10.2022). The study was an open survey

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dedicated to general and colorectal surgeons with varying levels of experience and from different types of hospitals and countries. The questionnaire was developed based on current literature and was available in both Turkish and English. It was distributed via SurveyMonkey (San Mateo, CA) through social media platforms (Twitter, WhatsApp), e-mail, and personal invitations.

Survey Content

The survey comprised 24 questions evaluating surgical preferences regarding LIS. Topics included anorectal manometry use, bowel preparation, patient positioning, retractor type, incision method, sphincterotomy technique and extent, fissurectomy, and management of hypertrophied anal papillae or skin tags. Demographic data were also collected, including country, gender, years of experience, institutional setting, and procedure volume.

Statistical Analysis

Survey responses were collected anonymously over a two-month period. Participants were divided into two groups based on their country of practice (Türkiye or other countries) for comparative analysis. Responses were analyzed using SPSS v20.0. All survey questions yielded categorical data, which were presented as frequencies and percentages. Statistical comparisons between groups were conducted using the chi-square test. A p-value of <0.05 was considered statistically significant.

RESULTS

Responses were obtained from 207 surgeons: 131 from Türkiye and 76 from other countries (Argentina, Azerbaijan, Belgium, Brazil, Colombia, El Salvador, France, Honduras, India, Italy, Kenya, Mexico, Netherlands, Panama, Paraguay, Portugal, Spain, USA, UK, Canada, Venezuela). The majority of participants (73.33%) were male, and 64.7% were aged between 40 and 64 years (Table 1).

Surgeons in the Turkish group were older, on average, than those in the international group. Most participants (70%) had over 10 years of surgical experience, 55% worked in academic institutions, and 61% performed more than 10 procedures for CAF per year.

The open LIS technique was the predominant approach (73.6%), with Turkish surgeons significantly more likely to prefer the open technique compared to their international counterparts (Table 2). Preferences for sphincterotomy size were 66% partial, 21% complete, and 12% tailored. There was a notable difference between groups regarding fissure length preferences.

Substantial variability was observed in preoperative bowel preparation, patient positioning, retractor selection, incision methods, and additional procedures, such as fissurectomy and skin tag excision. The use of preoperative anorectal manometry was reported by only 6% of surgeons, with most respondents deeming it unnecessary. Variations in technique were evident between countries but were not significantly associated with demographic factors such as age, gender, or surgical experience.

Table 1. Surgeon demographics

	n=131 Türkiye	n=76 World	p-value
Age year, n (%)			
25-39	27 (20.6)	38 (50)	0.000*
40-64	100 (76.3)	34 (44.7)	
65 and over	4 (3)	4 (5.3)	
Gender, n (%)			
Male	91 (69.5)	61 (80.3)	0.091
Female	40 (30.5)	15 (19.7)	
Surgical experience year, n (%)			
1-10	22 (16.8)	42 (45.3)	0.000*
11-20	58 (44.3)	19 (25)	
21 and over	51 (38.9)	15 (19.7)	
LIS per year, n (%)			
0-5	34 (26)	57 (75)	0.000*
6-10	22 (16.8)	16 (21)	
11-20	31 (23.7)	2 (2.6)	
21 and over	44 (33.6)	1 (1.3)	
Type of hospital, n (%)			
Academic	74 (56.5)	41 (56.2)	0.000*
Community	24 (18.3)	28 (38.4)	
Private	33 (25.2)	4 (5.5)	

*: Statistically significant differences in bold, LIS: Lateral internal sphincterotomy.

Table 2. Surgeon preferences			
	n=131 Türkiye	n=76 World	p-value
Preoperative			
Preoperative manometry, n (%)			
Yes	2 (1.5)	10 (13.2)	0.001*
No	129 (98.5)	66 (86.8)	
Preoperative bowel preperation, n (%)			
Yes oral & enema	2 (1.0)	0	0.00*
Yes enema	77 (37.2)	26 (12.6)	
No	52 (25.1)	50 (24.2)	
Operative			
Open vs. closed LIS, n (%)			
Open	117 (89.3)	45 (59.2)	0.000*
Closed	13 (9.9)	31 (40.8)	
Sphincterotomy size, n (%)			
Complete	34 (26)	10 (13.2)	0.009*
Partial	86 (65.6)	51 (67.1)	
Tailored	10 (7.6)	15 (19.7)	
Anacutaneous incision, n (%)			
Transverse	63 (48)	43 (57)	0.240
Vertical	68 (52)	33 (43)	
Hypertrophied papillae-skin tag excision, n (%)			
Yes	70 (33.8)	38 (18.4)	0.00*
No	30 (14.5)	19 (9.2)	
Sometimes	31 (15.0)	19 (9.2)	
Fissurectomy, n (%)			
Yes	19 (14.5)	17 (22.4)	0.894
No	95 (72.5)	44 (57.9)	
Sometimes	17 (13)	15 (19.7)	
Dividing internal sphincter with, n (%)			
Scalpel	16 (12.2)	16 (21.1)	0.008*
Scissors	9 (6.9)	13 (17.1)	
Electric diathermy	106 (80.9)	46 (60)	
Cauterize/curretage the fissure floor, n (%)			
Yes	49 (37.7)	31 (41.9)	0.581
No	64 (49.2)	31 (41.9)	
Sometimes	17 (13.1)	12 (16.2)	
Position, n (%)			
Lithotomy	103 (78.6)	50 (65.8)	0.043*
Jackknife	28 (21.4)	26 (34.2)	
Anesthesia, n (%)			
Local	15 (11.5)	19 (25)	0.021*
Spinal	68 (51.9)	40 (52.6)	
Laryngeal mask	43 (32.8)	12 (15.8)	
General anesthesia	5 (3.8)	5 (6.6)	
Retractor, n (%)			
None	41 (31.3)	7 (9.2)	0.000*
Anal speculum	75 (57.3)	31 (40.8)	
Park	3 (2.3)	13 (17.1)	
Hill ferguson	8 (6.1)	15 (19.7)	
Other	4 (3.1%)	9 (11.8)	
Postoperative			
Anal tampon, n (%)			
Yes	67 (51.1)	32 (42.1)	0.192
No	63 (48.1)	44 (57.9)	
Sitz bath, n (%)			
Yes	78 (59.5)	54 (71.1)	0.097
No	53 (40.5)	22 (28.9)	

*: Statistically significant differences in bold. LIS: Lateral internal sphincterotomy.

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DISCUSSION

The results of this international survey highlight the lack of a standardized surgical technique for LIS. Despite this heterogeneity, LIS continues to yield high success rates, raising questions about which aspects of the procedure are truly critical for outcomes. There is no general agreement on many subjects regarding the LIS technique. It appears that there are no established standards in certain aspects, and a variety of techniques are implemented in clinical practice. The high success of a technique with such different applications is an interesting phenomenon. Isn't the devil in the details? Or, regardless of the details, is adequate cutting of the internal sphincter the most important factor determining success, and do the surgeons have the freedom they desire when performing their surgeries?

One of the controversial issues regarding LIS is the incision technique. The procedure can be performed in either an open or a closed manner. In the open approach, the anoderm is incised to visualize and divide the internal sphincter muscle directly. In contrast, the closed technique involves inserting a blade beneath the anoderm or into the intersphincteric space, allowing the sphincter to be divided without extensive incision of the anal mucosa. Based on high-quality evidence, there is no significant difference between the two techniques in terms of the rate of healing or incontinence. Open sphincterotomy has been associated with higher postoperative pain and a delayed healing rate of the surgical site (6).

The current ASCRS guideline states that both techniques can be used at the surgeon's discretion (2). While this suggestion has been adopted by the international group, participants in the Turkish group mainly preferred the open technique. There was no relationship between the choice of technique outside the country and the surgeon's age, gender, or experience.

The extent of the sphincterotomy also remains controversial. Complete or longer sphincterotomy divides the internal anal sphincter muscle to the level of or just proximal to the dentate line. The tailored, or partial sphincterotomy, divides the internal anal sphincter only to the level of the apex of the fissure.

Based on the evidence, tailored sphincterotomy yields similar healing rates but lower FI rates compared with complete LIS (7,8). Many guidelines state recommendations in favor of partial sphincterotomy, which is safer in terms of fecal incontinence (2,3,9,10). According to survey results, while complete sphincterotomy still accounts for 25% of procedures among surgeons in Türkiye, all surgeons focus on limited sphincterotomy in partial or tailored forms due to the risk of fecal incontinence.

There is a complete disagreement in approach on some details. Although circumferential or transverse incisions have been found to be advantageous in studies (11), when comparing the

skin incisions used for lateral internal sphincterotomies, half of the surgeons prefer the vertical incision, and the other half prefer the transverse incision.

According to some studies, hypertrophied anal papillae, fibrous anal polyps, and skin tag excision increase patient satisfaction after anal fissure surgery (12). The issue of excision of skin tags and hypertrophied anal papillae or additional fissurectomy performed during the procedure, as well as the surgeons' tendencies, are unclear based on survey results.

Although anal manometry could detect anal tone more accurately than digital rectal examination, the impact of preoperative manometry on the outcome of anal fissure surgery is still unclear and a subject of debate. There is little guidance on how anal manometry can be used before LIS or in anal fissure management. The Italian guideline recommends that in patients with chronic anal fissures who are poorly responsive to medical therapy, an anorectal manometric evaluation may be considered to select patients without internal sphincter hypertonia (10) accurately. In the last published survey (13), almost half of the surgeons believed that manometry should be included in anal fissure management, while in our survey, more than 90% of surgeons did not use anal manometry before LIS in clinical practice.

In recent years, many studies have been published evaluating surgeons' attitudes toward the management and treatment of anal fissures (14-17). The main focus of our study is on identifying differences among LIS surgical techniques. Naturally, when comparing the results of our study with those of a recent survey that included limited questions about surgical technique, differences emerged regarding sphincterotomy technique and size.

Study Limitations

This study has several limitations. Primarily, being a questionnaire-based design, its findings may lack the robustness of data obtained through prospective or randomized controlled trials. Additionally, the sample size is relatively limited. Although the research aims to explore global practices and preferences regarding LIS, the inclusion of surgeons from 22 countries—some represented by only a small number of participants—restricts the possibility of conducting detailed subgroup analyses based on country. Nonetheless, the fact that participating surgeons have substantial experience in managing anal fissures adds credibility to the findings.

One limitation is the inability to report a response rate. Due to the open and anonymous distribution of the survey through professional networks and social media platforms, the total number of recipients could not be determined, and therefore, the response rate could not be calculated.

Furthermore, there is a potential for selection bias introduced by the method of survey dissemination. The questionnaire was distributed via open channels, including WhatsApp groups and professional mailing lists, which may have disproportionately reached surgeons with a specific interest in colorectal surgery. As a result, the responses may not fully represent the broader surgical community. To ensure transparency, both the English and Turkish versions of the survey have been provided as supplementary material.

CONCLUSION

According to ASCRS recommendations, LIS may be offered to selected pharmacologically naïve patients with chronic anal fissures. However, in real-world settings, 4.0% of anal fissures undergo surgical intervention. If the most effective treatment for anal fissure is still LIS, shouldn't we standardize the most appropriate version of the technique and pass it on to younger generations?

Ethics

Ethics Committee Approval: Approval for conducting the study was obtained from the Clinical Ethics Committee of Ankara University Medical Faculty (date: 13/10/2022, number: 2022000546/i09-575-22).

Informed Consent: N/A.

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Footnotes

Author Contributions

Concept – N.Ş., C.A.; Design – N.Ş., C.A., B.B.; Materials – N.Ş., C.A., B.B., H.M.; Data Collection or Processing – N.Ş., C.A., B.B., H.M.; Analysis or Interpretation – N.Ş., C.A., B.B., H.M.; Literature Search – N.Ş., C.A., B.B., H.M.; Critical Review – N.Ş., C.A., B.B.; Writing – N.Ş., C.A.

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REFERENCES

- Menteş BB, Tezcaner T, Yılmaz U, Leventoğlu S, Oguz M. Results of lateral internal sphincterotomy for chronic anal fissure with particular reference to quality of life. *Dis Colon Rectum*. 2006;49:1045-1051.
- Davids JS, Hawkins AT, Bhama AR, Feinberg AE, Grieco MJ, Lightner AL, et al. The American Society of Colon and Rectal Surgeons Clinical Practice Guidelines for the management of anal fissures. *Dis Colon Rectum*. 2023;66:190-199.
- Cross KLR, Brown SR, Kleijnen J, Bunce J, Paul M, Pilkington S, et al. The Association of Coloproctology of Great Britain and Ireland guideline on the management of anal fissure. *Colorectal Dis*. 2023;25:2423-2457.
- Bonyad A, Zadeh RH, Asgari S, Eghbal F, Hajhosseini P, Ghadri H, et al. Botulinum toxin injection versus lateral internal sphincterotomy for chronic anal fissure: a meta-analysis of randomized control trials. *Langenbecks Arch Surg*. 2024;409:355.
- Nelson RL, Manuel D, Gumienny C, Spencer B, Patel K, Schmitt K, et al. A systematic review and meta-analysis of the treatment of anal fissure. *Tech Coloproctol*. 2017;21:605-625.
- Tanveer A, Arshad S, Fakhri N, Farooq DA, Afyouni A, Kamran A, et al. Close lateral internal sphincterotomy versus open lateral internal sphincterotomy for chronic anal fissure: a systematic review and meta-analysis. *Ann Med Surg (Lond)*. 2023;86:975-985.
- Gandomkar H, Zeinoddini A, Heidari R, Amoli HA. Partial lateral internal sphincterotomy versus combined botulinum toxin A injection and topical diltiazem in the treatment of chronic anal fissure: a randomized clinical trial. *Dis Colon Rectum*. 2015;58:228-234.
- Menteş BB, Ege B, Leventoglu S, Oguz M, Karadag A. Extent of lateral internal sphincterotomy: up to the dentate line or up to the fissure apex? *Dis Colon Rectum*. 2005;48:365-370.
- Roelant P, Bislenghi G, Coremans G, De Looze D, Denis MA, De Schepper H, et al. Belgian consensus guideline on the management of anal fissures. *Acta Gastroenterol Belg*. 2024;87:304-321.
- Brillantino A, Renzi A, Talento P, Iacobellis F, Bruscianno L, Monaco L, et al. The Italian Unitary Society of Colon-proctology (SIUCP: Società Italiana Unitaria di Coloproctologia) guidelines for the management of anal fissure. *BMC Surg*. 2023;23:311.
- Kang WH, Lim CH, Choi DH, Shin HK, Lee YC, Jeong SK, et al. Comparison of skin incisions used for open lateral internal sphincterotomies--radial versus circumferential incisions: a retrospective cohort study. *Int J Surg*. 2014;12:1141-1145.
- Gupta PJ, Kalaskar S. Removal of hypertrophied anal papillae and fibrous anal polyps increases patient satisfaction after anal fissure surgery. *Tech Coloproctol*. 2003;7:155-158.
- Picciariello A, Tutino R, Gallo G, Altomare DF, Pietroletti R, Dezi A, et al. Temporal trends and treatment patterns in anal fissure management: insights from a multicenter study in Italy. *Tech Coloproctol*. 2024;28:139.
- Balla A, Saraceno F, Shalaby M, Gallo G, Di Saverio S, De Nardi P, et al. Surgeons' practice and preferences for the anal fissure treatment: results from an international survey. *Updates Surg*. 2023;75:2279-2290.
- van Reijn-Baggen DA, Dekker L, Elzevier HW, Pelger RCM, Han-Geurts IJM. Management of chronic anal fissure: results of a national survey among gastrointestinal surgeons in the Netherlands. *Int J Colorectal Dis*. 2022;37:973-978.
- Vitton V, Bouchard D, Guingand M, Higuero T. Treatment of anal fissures: results from a national survey on French practice. *Clin Res Hepatol Gastroenterol*. 2022;46:101821.
- Siddiqui J, Fowler GE, Zahid A, Brown K, Young CJ. Treatment of anal fissure: a survey of surgical practice in Australia and New Zealand. *Colorectal Dis*. 2019;21:226-233.