

Effectiveness of Seton In Anal Fistula

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ABSTRACT

Objective To determine the healing and recurrence rates of anal fistula with seton and affect of cormorbid conditions on these variables.

Study design Cross sectional study.

Place & Duration of study Department of Surgery, Qazi Hussain Ahmed Medical Complex Nowshera, From June 2018 to November 2018.

Methodology Sample size of 110 anal fistula patients was calculated using WHO calculator. Non probability consecutive sampling was used. Ethical approval and consents were obtained. All patients underwent anal fistula surgical procedure with seton. Effectiveness of seton was determined by finding recurrence and healing rates. Effect of co morbids like diabetes mellitus (DM), hypertension and cardiovascular disease was also determined. SPSS software was used for data analysis. Chi-square test was applied and p value <0.05 was considered significant.

Results A total 110 anal fistula patients were included in this study. There were 80 (72.7%) male and 30 (27.3%) female patients. Mean age of study subjects was 41.1±1 year. Healing rate was =50% in 32 (29.1%) and >50% in 78 (70.9%). Recurrence rate was =10% in 88 (80%) and >10% in 22 (20%) patients. Healing rate was >50% in majority of diabetes mellitus patients (p=0.05), hypertensive patients (p=0.05) and low in cardiovascular disease patients (p=0.34). Majority of patients with seton who had low pain score had healing rate >50% (p=0.01). Recurrence rate was significantly associated with DM (p=0.001) and hypertension (p=0.000). Healing rate and recurrence rate were insignificantly associated with age (p=0.648, p=0.792)and gender (p=0.243, p=1.00) respectively.

Conclusion Seton was an effective and safe mode of management of anal fistula with relatively high success and low recurrence rate.

Key words Seton, Anal fistula, Recurrence.

INTRODUCTION:

Anal fistula is defined as an inflammatory tract between skin and anal canal.¹ Anal fistula is an ano-rectal abscess complication that is more common in females as compared to males, worldwide.²

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An estimated 80% of anal fistulae are the result of ano-rectal infections.³ Prevalence of anal fistula is 34% in United States, and 25% in Western countries.^{4,5} Frequency of anal fistula is 12% in developing countries.⁶ Frequency of anal fistula was 10% in a study from Quetta and was found more commonly in males.⁷

American Society of Colon and Rectal Surgeons (ASCRS) has divided anal fistula into two categories; simple and complex anal fistula. Simple anal fistula is inter-sphincteric or trans-sphincteric (<30% of external sphincter is involved) while complex anal fistulae are usually associated with preexisting fecal incontinence, radiation and they involve more

muscles. They are also found in inflammatory bowel diseases. Recurrent fistulae are also included in this category.⁸ These fistulae are further classified into four major types on the basis of relationship with sphincter muscle; inter-sphincteric, trans-sphincteric, supra-sphincteric and extra-sphincteric.⁹

Pathophysiology of anal fistula is complex and is also associated with number of other conditions.¹⁰ Surgical treatment of anal fistula involves eradication of sepsis, tract healing, sphincters preservation with continence. Several treatment options are available for anal fistula. Fistulotomy procedure is reported to have 90% cure rate.¹¹ Use of seton is an oldest surgical approach to preserve sphincter mechanism. Seton placement is done either loose or cutting through sphincters. Loose seton is associated with infection control and cutting seton act as bridge. Healing rate of loose seton ranges from 44%-83% while recurrence rate of cutting seton range from 22%-39%.¹² A study reported that chemical seton is associated with longer healing time (11%) and low recurrence rate (4%).¹³ Another study using a modified seton technique reported no recurrence in trans-sphincteric fistula, while 3.9% in supra-sphincteric fistula.¹⁴ Present study aimed to determine the healing and recurrence rates of anal fistula with the use of seton.

METHODOLOGY:

A cross sectional study was conducted in the Department of Surgery, Qazi Hussain Ahmed Medical Complex Nowshera, from June 2018 to November 2018. A sample size of 110 anal fistula patients was calculated with prevalence 83% and 7% absolute precision and 95% confidence level using WHO calculator.¹⁵ Patients were selected through simple random sampling. Ethical approval and consent were taken. Patients of age >18 years, both gender and those with co morbid (diabetes mellitus, hypertension, cardiovascular diseases) diagnosed with anal fistula, were included in the study. All patients were investigated and had complete preoperative workup including coagulation profile, electrocardiogram, blood count, blood chemistry and chest x-ray. Patients were subjected to standardized procedure of fistula resolution with loose seton. Patients were followed after one month for healing, recurrence, and complications. Tolerance was defined as level of pain using (visual analogue scale). Pain scores >7 were considered as severe while <7 were considered tolerated. SPSS version 24 was used for data analysis. Frequency, percentage, mean and standard deviation were calculated for qualitative and quantitative data, respectively. Effect modifiers like age, gender and

duration of disease were controlled with stratification. Post stratification Chi-square test was applied. A p value <0.05 was considered significant.

RESULTS:

A total 110 anal fistula patients were included in the study. Mean age of the patients was 41.1±1 year. There were 80 (72.7%) male and 30 (27.3%) female patients. Of the total, 31 (28.2%) patients were between 19-35 year age group and 79 (71.8%) in 36-60 year age group. Healing rate and recurrence rate were insignificantly associated with age (p=0.648, p=0.792) and gender (p=0.243, p=1.00) respectively. There were 47 (42.7%) diabetic, 51 (47.3%) hypertensive, and 26 (23.6%) patients with cardiovascular diseases. Eighty-four (76.4%) patients tolerated seton.

Morbidity was reported in 9 (8.2%) cases. Healing rate was >50% in 78 (70.9%) and recurrence rate was 10% in 88 (80%) patients. Most common acute complication was fear of bowel movements (n=23-21%) followed by pain (n=21-19%) while most common chronic complication was fecal incontinence and chronic pains (n=25 - 23%). Among all those who had healing rate >50%, 38 (34.5%) were diabetic (p=0.05). Details are given in table I. Among all those who had recurrence rate >10%, 17 (15.5%) were diabetic (p=0.001). Details are provided in table II.

DISCUSSION:

Anal fistula is a common ano-rectal disease associated with significant pain and poses management challenge. In present study high healing rate (70.9%) was observed. This was coupled with less than 20% recurrence rate. Hammond et al reported that healing rate of seton in anal fistula was 60%.¹⁶ Another similar study reported recurrence rate in loose seton of 3%.¹⁷ In our study recurrence rate was quite high while healing rate was comparable with studies cited.

Comorbid conditions affect the healing process. In present study, among all who had healing rate >50%, about 1/3rd were diabetics. This on stratification was found to be significant. Ho et al reported that healing rate is significantly associated with diabetes (p=0.01).¹⁸ Moreover, Ho et al reported that in diabetic patients healing rate is slower (p=0.00).¹⁹ Similar was the observation in hypertensive patients. Ho et al reported that there was no significant association between healing rate and hypertension (p=0.34).²⁰ However, Jain et al reported that male hypertensive patients were less likely to heal faster than female hypertensive patients (p=0.01).²¹

Table I: Association Between Healing Rate and Comorbidities				
Comorbidities	Healing rate		Total	P value
	<50%	>50%		
Diabetes Mellitus				
No	23 (20.9%)	40 (36.4%)	63 (57.3%)	0.05
Yes	9 (8.2%)	38 (34.5%)	47 (42.7%)	
Hypertension				
No	14 (12.7%)	44 (40%)	58 (52.7%)	0.05
Yes	18 (16.4%)	34 (30.9%)	52 (47.3%)	
Cardiovascular disease				
No	22 (20%)	62 (56.4%)	84 (76.4%)	0.34
Yes	10 (9.1%)	16 (14.5%)	26 (23.6%)	
Seton Tolerance				
No	8 (7.3%)	18 (16.4%)	26 (23.6%)	0.01
Yes	24 (21.8%)	60 (54.5%)	84 (76.4%)	
Morbidity				
No	32 (29.1%)	69 (62.7%)	101 (91.8%)	0.05
Yes	0 (0%)	9 (8.2%)	9 (8.2%)	
T o t a l	32 (29.1%)	78 (70.9%)	110 (100%)	

In present study, patients with healing rate >50%, showed more tolerance to seton which was statistically significant. Van et al reported that tolerance with seton was 40% in majority of patients treated for anal fistula.²² Another similar study reported that patients with age < 25 years had more tolerance with seton as compared to elder age group (p=0.01).²³

CONCLUSIONS:

Use of seton was found to be an effective and safe management for anal fistula with relatively high success and low recurrence rate. Therefore, it can be recommended as a standard procedure in resource limited areas.

REFERENCES:

- Zanotti C, Martinez-Puente C, Pascual I, Pascual M, Herreros D, Garcia-Olmo D. An assessment of the incidence of fistula in-ano in four countries of the European union. *Int J Colorectal Dis.* 2017;22:1459-62.
- Marks CG, Ritchie JK. Anal fistulas at St Mark's Hospital. *Br J Surg.* 2013;64:84-91.
- Gecse KB, Bemelman W, Kamm MA, Stoker J, Khanna R, Ng SC, Panés J, van Assche G, Liu Z, Hart A, et al. A global consensus on the classification, diagnosis and multidisciplinary treatment of perianal fistulising Crohn's disease. *Gut.* 2014;63:1381-92.
- Zubaidi AM. Anal fistula, Past and present. *Saudi Med J.* 2014;35:937-44.
- Jacob TJ, Perakath B, Keighley MR. Surgical intervention for anorectal fistula. *Cochrane Database Syst Rev.* 2015;12: 6319-20.
- Herreros MD, Garcia-Arranz M, Guadalajara H. Autologous expanded adipose-derived stem cells for the treatment of complex cryptoglandular perianal fistulas: a phase III randomized clinical trial (FATT 1: fistula Advanced Therapy Trial 1) and long-term evaluation. *Dis Colon Rectum.* 2015;55:762-72.
- Pescatori M, Ayabaca SM, Cafaro D, Iannello A, Magrini S. Marsupialization of fistulotomy

Table II: Association Between Recurrence Rate and Comorbidities				
Comorbidities	Healing rate		Total	P value
	<50%	>50%		
Diabetes Mellitus				
No	58 (52.7%)	5 (4.5%)	63 (57.3%)	0.001
Yes	30 (27.3%)	17 (15.5%)	47 (42.7%)	
Hypertension				
No	36 (32.7%)	22 (20%)	58 (52.7%)	0.000
Yes	52 (47.3%)	0 (0%)	52 (47.3%)	
Cardiovascular disease				
No	64 (58.2%)	20 (18.2%)	84 (76.4%)	0.09
Yes	24 (21.8%)	2 (1.8%)	26 (23.6%)	
Tolerance				
No	16 (14.5%)	10 (9.1%)	26 (23.6%)	0.05
Yes	72 (65.5%)	12 (10.9%)	84 (76.4%)	
Morbidity				
No	85 (77.3%)	16 (14.5%)	101 (91.8%)	0.02
Yes	3 (2.7%)	6 (5.5%)	9 (8.2%)	
Total	88 (80%)	22 (20%)	110 (100%)	

- and fistulectomy wounds improves healing and decreases bleeding: a randomized controlled trial. *Colorectal Dis.* 2016;8:11-4.
8. Hjortrup A, Moesgaard F, Kjaergard J. Fibrin adhesive in the treatment of perineal fistulae. *Dis Colon Rectum.* 2015;34:752-4.
 9. Limura E, Giordano P. Modern management of anal fistula. *World J Gastroenterol.* 2015;21:12-20.
 10. A ba-bai-ke-re MM, Wen H, Huang HG, Chu H, Lu M, Chang ZS, et al. Randomized controlled trial of minimally invasive surgery using acellular dermal matrix for complex anorectal fistula. *World J Gastroenterol.* 2010;16:3279-86.
 11. Altomare DF, Greco VJ, Tricomi N, Arcanà F, Mancini S, Rinaldi M, et al. Seton or glue for trans-sphincteric anal fistulae: a prospective randomized crossover clinical trial. *Colorectal Dis.* 2015;13:82-6.
 12. Chalya PL, Mabula JB. Fistulectomy versus fistulotomy with marsupialisation in the treatment of low fistula-in-ano: a prospective randomized controlled trial. *Tanzan J Health Res.* 2013;15:193-8.
 13. Ellis CN, Clark S. Fibrin Glue as an Adjunct to Flap Repair of Anal Fistulas: A randomized, controlled study. *Dis Colon Rectum.* 2016;49:1736-40.
 14. Filingeri V, Gravante G, Baldessari E, Casciani CU. Radiofrequency fistulectomy vs. diathermic fistulotomy for submucosal fistulas: a randomized trial. *Europ Rev Med Pharmacol Sci.* 2014;8:111-6.
 15. Garcia-Olmo D, Herreros D, Pascual I, Pascual JA, Del-Valle E, Zorrilla J, et al. Expanded adipose-derived stem cells for the treatment of complex perianal fistula: a phase II clinical trial. *Dis Colon Rectum.* 2017;52:79-86.

16. Hammond TM, Porrett TR, Scott SM, Williams NS, Lunniss PJ. Management of idiopathic anal fistula using cross-linked collagen: a prospective phase 1 study. *Colorectal Dis.* 2014;13:94-104. fistula-in-ano: a prospective randomized trial. *Dis Colon Rectum.* 2014;57:1202-08.
17. Han JG, Wang ZJ, Zheng Y, Chen CW, Wang XQ, Che XM, et al. Ligation of intersphincteric fistula tract vs ligation of the intersphincteric fistula tract plus a bioprosthetic anal fistula plug procedure in patients with transsphincteric anal fistula: early results of a multicenter prospective randomized trial. *Ann Surg.* 2016;264:917-22.
18. He CM, Lu JG, Cao YQ, Yao YB. [Design characteristics of clinical surgery trial based on treatment program of tunnel thread-drawing method for anal fistula: a prospective randomized controlled multicenter trial.] [Article in Chinese] *Zhong Xi Yi Jie He Xue Bao.* 2014;7:1113-8. doi: 10.3736/jcim20091204.
19. Ho YH, Tan M, Leong AF, Seow-Choen F. Marsupialization of fistulotomy wounds improves healing: a randomized controlled trial. *Br J Surg.* 2016;85:105-7.
20. Ho KS, Tsang C, Seow-Choen F, Ho YH, Tang CL, Heah SM, et al. Prospective randomised trial comparing ayurvedic cutting seton and fistulotomy for low fistula-in-ano. *Tech Coloproctol.* 2015;5:137-41.
21. Jain BK, Vaibhaw K, Garg PK, Gupta S, Mohanty D. Comparison of a fistulectomy and a fistulotomy with marsupialization in the management of a simple anal fistula: a randomized, controlled pilot trial. *J Korean Soc Coloproctol.* 2014;28:78-82.
22. Van Koperen PJ, Bemelman WA, Gerhards MF, Janssen LW, van Tets WF, van Dalsen AD, et al. The anal fistula plug treatment compared with the mucosal advancement flap for cryptoglandular high transsphincteric perianal fistula: a double-blinded multicenter randomized trial. *Dis Colon Rectum.* 2016;54:387-93.
23. Madbouly KM, El Shazly W, Abbas KS, Hussein AM. Ligation of intersphincteric fistula tract versus mucosal advancement flap in patients with high transsphincteric

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Fazal Ghani: Data collection & data analysis.
Kamran Hakeem Khan: Study design & data collection.
Mudasar Shahzad: Data analysis.
Kamran Ahmad: Final review & approval.

Conflict of Interest:

The authors declare that they have no conflict of interest.

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