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Minimally Invasive Management and Etiological Insights in Complex Fistula in Ano: Intersphincteric Perspective

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Abstract

Background: Evaluating, classifying and planning surgical approach in a minimal invasive way are the goals of treatment strategy in complex fistula patients. For successful management, eradication of sepsis and promotion of fistula tract healing are the key factors while incontinence and recurrence are the biggest hurdles.

Methods: A retrospective analysis was conducted on complex fistula patients treated using Transanal Opening of Intersphincteric Space (TAOIS) at a single center between November 2020 and October 2021. The study employed purposive sampling and encompassed patient background characteristics, fistula type and position, preoperative complaints, pain VAS score, anal tonometry findings, surgery duration, post-operative complications, hospital stay length, patient return to routine activities, and follow-up anal tonometry results.

Results: Out of 68 patients with complex fistula 45 (66.18 %) presented with Trans sphincteric fistula ,64.4% were anterior type. Male patients were more, 83.82% (57) with and mean age of patients was 43.36. Mean duration of surgery was 45.46 min, Average hospital stay was not more than 24 hours in most of the patients (94.24%) while resuming normal routine was around 8.8 days. Almost all the patients recovered uneventfully with minor pain, minor intermittent bleeding and discharge per Anum. Statistically significant association was seen in pre and post operative VAS score and in anal tonometric readings.

Conclusions: The Intersphincteric Space does hold the key to the Gateway of Treatment of Complex fistula in Ano and the Trans anal opening of intersphincteric space (TAOIS) approach, the minimally invasive sphincter sparing technique, is effective in dealing with intersphincteric space.

Keywords: Complex anal fistula, Intersphincteric space, Horseshoe shaped fistula, sphincter preserving techniques

Introduction

Complex fistula in Ano poses a formidable challenge, even within our modern era, due to its intricate origins,

relatively high frequency, and prolonged convalescence. While contemporary management techniques and minimally invasive surgeries have displayed improved success rates, the quandary of heightened relapse risk and complications, such as fecal incontinence, remains unresolved. A standardized protocol for treating intricate anal fistulas is still lacking.

According to existing literature, the cryptoglandular theory stands as the most widely accepted explanation for fistula causation. Various researchers have endeavoured to substantiate the correlation between anal glands and fistula development. Nevertheless, the Etiology persists as uncertain, though the role of inflammatory processes emerges as pivotal[1]. Recently, Garg P[2].'s research revealed the significant involvement of the intersphincteric space in anal fistula pathogenesis. His findings underscored that almost all complex fistulas exhibit some degree of intersphincteric engagement, with fistulas confined within the closed intersphincteric space mimicking abscesses and thus necessitating corresponding treatment strategies.[3]

Advancements in molecular analysis have further elucidated the influence of pro-inflammatory cytokines[1,4]. Auto-stimulation of these cytokines likely contributes to the persistence or recurrence of anal fistulas[4]. Enhanced comprehension of the etiological underpinnings indeed marks a breakthrough in fistula management. Surgical intervention for complex fistulas hinges on the identification and mapping of fistula tracts and internal openings while safeguarding anal sphincter function.

In the current study, our aim was to investigate the role of the intersphincteric space in complex fistula cases. We employed a minimally invasive approach termed Trans anal opening of intersphincteric space (TAOIS) to address complex fistulas and evaluated its efficacy.

Material Method

All the complex fistula patients treated with Trans anal opening of intersphincteric space (TAOIS) in a single centre during the period November 2020 to October 2021 were analysed retrospectively with a purposive sampling. After a formal approval from hospital ethics committee, data was collected in predesigned validated questionnaire. Patients were enrolled as per inclusion & exclusion criteria. Patients with High (TS) Fistulas, involving more than one thirds of sphincter complex, as evident in Preoperative MRI, High (IS) Fistulas, Horseshoe fistulas (IS), (TS), Extrasphincteric, Supralevator fistula were included. Patients of Ulcerative colitis, Crohn's colitis, Low (IS), (TS) Fistulas were excluded .The data collected included background characteristics of patients, type of fistula ,position of fistula, preoperative complaints ,VAS score for pain and anal tonometry results, time requited for surgery, any post-surgery complications ,duration of hospital stay ,resumption of normal routine by the patient and anal tonometry results during follow up visits .All the patients were operated at single centre by single surgeon. A standard preoperative routine is followed in all patients and standard operative procedure is done in all the subjects.

Steps of Operative procedure

A Thorough clinical examination and a blood work up was performed in all patients including preoperative MRI. The patients were operated under spinal anaesthesia (saddle block) and a modified Trendelenburg position with hip joint in hyper extension. The preoperative antibiotic prophylaxis of ceftriaxone 1gm/iv and metronidazole 500mg/iv 2 hours prior to surgery was given.

1) The external opening was identified and the track followed to internal opening we used hydrogen peroxide

to locate the opening the internal opening in all cases in some cases the hydrogen peroxide would not flow out from Internal Opening (IO) but the IO could be identified as a dimple in the dentate line and a tuck was given to the tract through External Opening (EO).

2) A curved radiofrequency probe or a bare fibre of 1407 nanometer diode laser was used to widen the internal opening till the IS Plane.

3)in cases where a circumferential spread in the IS plane evident, a thorough debridement was performed.

4)The (TS) and/ (IS) tracts were curettaged and laser ablation done using round tip fistula fibre. The fibre was inserted through the external opening, pushed further till the IS plane and the laser energy delivered as the fibre was pulled out. The laser settings were on CW mode, delivering 100 joules /cm.

5) E O was cored out/debridement of abscess cavity done in cases of associated perianal abscesses.

6)In cases of Horseshoe abscesses/fistula tracts, the IS plane was laid open circumferentially, on both sides of midline and debridement performed.

7)Haemostasis achieved.

8)The tissue samples were sent for histopathological examination and pus sent for culture sensitivity. PCR was sent in suspicion of TB. The patients were discharged in 24 to 48 hours.

The patients were evaluated for postoperative symptoms and a record was made for each.

Anal Tonometry and Biofeedback were performed as per schedule. The healing of the fistula was assessed as apparent on physical examination, by a healed External opening and a mucosal healing in Intersphincteric plane.

Anal Tonometery was performed at 1 month, 3-months, 6 months postoperatively, along with physiotherapy. MRI was performed in all the cases after wound healing.

The data collected was arranged and analysed using MS Excel & SPSS 23.0 version. Percentage for each value was calculated and $p<0.05$ was considered highly significant.

Results

Out of 68 patients reviewed ,11 (16.18%) were female patients. As per table no 1, the mean age of female patients was 38.63 while for male it was 43.86. Overall mean age of patient was 43.36(SD=13.36). Most common type of fistula was Trans sphincteric (66.18 %) followed by IS (13.11%) and anterior type of fistula (64.06%) (Table no 2)

As per table no 3, Mean surgery time was 45.46 min (SD= 16.24). Average hospital stay was not more than 24 hours in most of the patients (94.24%) while resuming normal routine was around 8.8 days (SD=5.6). Almost all the patients recovered uneventfully with minor pain, minor intermittent bleeding and discharge per Anum.

Mean duration required for complete healing was …….

A statistically highly significant difference was seen in preoperative VAS score and VAS score on follow up at 2 weeks and 1 month. The difference between Anal tonometry readings preoperatively and postoperatively was also statistically highly significant. (Table no4 &5)

Discussion

The present study was an attempt to explore the role of intersphincteric space in healing of complex fistulas. We studied the outcome of one minimally invasive sphincter sparing technique i.e., Trans anal opening of intersphincteric space [TAOIS] to treat complex fistula in Ano. TAOIS involves internal sphincterotomy, from the Internal Opening till the IS plane (intersphincteric space), the advantage is it being minimal invasive, gives proper drainage of IS plane, high IS tracts which are not apparent even on MRI can be identified and tackled, horseshoeing in the IS plane can be tackled, and chances

of anal incontinence are avoided as it does not involve extensive cutting of external anal sphincter.

Modern Surgical techniques with trans anal access of internal opening like LIFT[5], VAAFT[6] or Filac[7], PERFACT[8] showed better success rate but recurrence was reported with complex fistula in Ano. Studies have shown that non healed portion of fistula tract in intersphincteric space usually causes delayed recurrences. Garg P et al[9,10] stated that the analysis of recurrence cases of PERFACT procedure showed that the "intersphincteric portion of the fistula tract" had failed to heal even when the internal opening had completely healed. The novel techniques like DLPL[11] and TROPIS[10] addresses the intersphincteric space and have negligible recurrence in long term. Trans anal route would be the best approach to access the intersphincteric portion of fistula tract. TROPIS[10] was based on the principle that the deroofing of intersphincteric portion of fistula tract would satisfactorily heal the IO and intersphincteric portion of fistula by secondary intention. While Effective and adequate laser debridement facilitates healing and efficient drainage of Intersphincteric space reduces chances of recurrence with DLPL[11] technique. The external anal sphincter is primarily responsible for the control of continence, it is preserved in both the novel procedures DLPL and TROPIS. Eventually it is evident that the surgical intervention that deals with external opening, tracing and debridement of tracts, identifying and closure of internal opening and efficient drainage of fistula tract gives successful results in managing complex fistula. The problem of incontinence can be dealt with using minimally invasive sphincter sparing techniques and the problem of recurrence in managing complex fistulas can be addressed by understanding the fundamental pathologic mechanisms.

As per the cryptoglandular theory, the abscess originates in intersphincteric space (IS), sometimes it traverses in the intersphincteric space (IS) and in these cases mere treating the internal opening (IO) will not be sufficient as infection can again arise in the intersphincteric space (IS) and lead to failure of surgical procedure and recurrence of fistula. The solution might lie in a relatively new paradigm that puts intersphincteric space as a likely culprit to fistula recurrence or nonhealing, and subsequent shift in surgical approach.[1]

The present study explored the technique Trans anal opening of intersphincteric space [TAOIS]. It is a minimally invasive sphincter sparing technique that addresses IO, intersphincteric space drainage and deals with high intersphincteric tracts. Complete healing maintain anal continence and anal tone was observed. Postoperatively patient's early lifestyle resumption was remarkable. We found it very effective in dealing with intersphincteric space and hence recurrence and incontinence.

Conclusion

We conclude that the Intersphincteric Space does hold the key to the Gateway of Treatment of Complex fistula in Ano and the Trans anal opening of intersphincteric space (TAOIS) approach, the minimally invasive sphincter sparing technique, is effective in dealing with intersphincteric space.

This novel approach in complex anal fistula treatment can offer a significant improvement in patients' quality of life, reduces the chances of recurrence and also allows for repeated surgical procedures at no expense on the anal sphincter.

Limitations: This is a single centre, retrospective study conducted in northern parts of India, hence results cannot be generalised. The follow up period is short hence the long-term outcomes were not studied. There is need of

prospective studies with long term follow up to study the role of intersphincteric space in healing of complex fistula. Also, a multicentric verification is required.

References

1. Karlović D, Kršul D, Jerković A, Bačić Đ, Zelić M. Anal Fistula: Contemporary View of Complex Problem [Internet]. Benign Anorectal Disorders - An Update. IntechOpen; 2023.
2. Garg P. A new understanding of the principles in the management of complex anal fistula. Medical Hypotheses. 2019;132:109329
3. Garg P. Transanal opening of intersphincteric space (TROPIS)—A new procedure to treat high complex anal fistula. International Journal of Surgery. 2017;40:130-134
4. van Onkelen RS, Gosselink MP, van Meurs M, Melief MJ, Schouten WR, Laman JD. Pro-inflammatory cytokines in cryptoglandular anal fistulas. Techniques in Coloproctology. 2016;20:619-625
5. Rojanasakul A. LIFT procedure: A simplified technique for fistula-in-ano. Tech Coloproctol 2009;13:237-40.
6. Meinero P, Mori L. Video-assisted anal fistula treatment (VAAFT): A novel sphincter-saving procedure for treating complex anal fistulas. Tech Coloproctol 2011;15:417-22.
7. Giamundo P, Geraci M, Tibaldi L, Valente M. Closure of fistula-in-ano with laser-FiLaCTM: An effective novel sphincter-saving procedure for complex disease. Colorectal Dis 2014;16:110-5.
8. Garg P, Garg M. PERFACT procedure: a new concept to treat highly complex anal fistula. World J Gastroenterol. 2015;21:4020-4029.
9. Garg P, Kaur B, Goyal A, Yagnik VD, Dawka S, Menon GR. Lessons learned from an audit of 1250 anal fistula patients operated at a single center: A retrospective review. World J Gastrointest Surg 2021; 13(4): 340-354
10. Garg P, Kaur B, Menon GR. Transanal opening of the intersphincteric space: a novel sphincter-sparing procedure to treat 325 high complex anal fistulas with long-term follow-up. Colorectal Dis. 2021.
11. Porwal A, Gandhi P, Kulkarni D. A prospective, noncomparative, study to evaluate the efficacy and safety of sphincter saving distal laser proximal ligation surgery in complex fistula-in-ano. Indian J Colo-Rectal Surg 2022;4:61-7.