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Managing Complex Fistula-in-Ano with Interception Technique and *Ksharasutra* (Ayurvedic Medicine Coated Surgical Thread) Application – A Case Study

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Abstract

Introduction: Anal fistulas can be considered complex when there is ramifications, internal opening is present proximal to pectinate line, has multiple openings, is supra-sphincteric or extra-sphincteric course. Managing complex anal fistulas is a matter of challenge due to high recurrences and surgical complications. Managing fistula-in-ano through *Ksharasutra* (Ayurvedic medicines coated surgical thread) has been practiced for decades which when integrated with modern interception techniques has been associated with very less recurrences and no or very minimal surgery related complications even in complex anal fistulas.

Methodology: A 59 years old male with 2 years history of complex fistula-in-ano has been operated under saddle block where complex fistulous track was intercepted at the level of external sphincter followed by application of *Ksharasutra*. Patient has been kept under proper post-operative care and the *Ksharasutra* has been changed

weekly till the track is cut open.

Result: Complete healing of the fistulous tracks occurred after 3 months without any significant post-operative adverse events. Patient didn't have any recurrence till the date and is living a good quality life now. He has got relief from all his previous signs and symptoms.

Discussion: *Ksharasutra* drains out the infective tissues of track and cures the cryptoglandular infections. Long tracks when intercepted separates track into two so that the track distal to the interception when drained properly collapses on its own so, there is no need to create big wounds to take out all fistula tracks. Sphincter damage by *Ksharasutra* is very minimal which barely can cause anal incontinence. Interception of complex fistula-in-ano with application of *Ksharasutra* has been found to be effective as well as very safe procedure.

Keywords: *Complex; Fistula-in-ano*; Interception; *Ksharasutra*

INTRODUCTION

A fistula-in-ano is considered complex when it is High anal which may be single tract; inter-sphincteric or trans-sphincteric track; anterior fistula in a female patient, or associated co-morbidities; High (multiple tracts or associated abscess or horseshoe tract; inter-sphincteric or trans-sphincteric); Supra-sphincteric, supra-levator, extra-sphinctericfistula-in-ano[1,2,3].

Complex fistulas include those that involve more than 30% of the external sphincter, fistulas with multiple tracts, recurrent fistulas, and those associated with other predisposing factors, including Crohn's disease and radiation treatment[4]. Management of complex fistula-in-ano is a matter of challenge because of extensive area involvement, chances of damaging sphincters, high chances of recurrences and more surgical & post-operative complications.

There are various options available for the treatment of complex fistula in ano where 2 staged seton therapy is a preferable choice in modern surgery it has got complete healing in 94% of the patients[5] but anal incontinence is noted in around 12% of the patients[6]. LIFT (Ligation of inter-sphincteric fistula track) is another option but has got only 71% of success rates[7]. Video assisted anal fistula treatment (VAAFT) and laser ablation of fistula track (LAFT) are device based modern methods of treatment whose success rates are declined to as low as 20-55% in complex fistula-in-ano[8].

There are various other options in managing complex fistula-in-ano but optimal successes were not achieved in any of procedures. Recurrence, incontinence, haemorrhage, delayed wound healing; larger defects, decreased quality of life etc are main challenges when dealing with complex anal fistulas.

Ksharasutra, a medicated surgical thread used for decades for the treatment of *Bhagandara* (Fistula-in-ano)[9]. It acts as a both draining as well as cutting seton simultaneously with high success rates and with no or minimal anal incontinence.

IFTAK (Interception of fistulous track with application of Ksharasutra)[10] also known as BHU technique treatment of Fistula-in-ano

and was postulated and practiced by Dr M Sahu et al. for treating complex fistula-in-ano is a novel technique. Now is being practiced in many parts of the world. In this technique, interception of proximal part of fistulous track is done at the level of external sphincter along with the application of *Ksharasutra* from the site of interception to the infected crypt in anal canal. This technique is focused on the concept of clearing or eradicating the infection from where fistulous track is started and does not damage the anal sphincters. *Kshara* in the track causes extensive fibrosis and favors proper healing which reduces the chances of recurrence.

New and alternative treatment modalities are needed while facing many problems associated with management of complex fistula-in-ano that's why a novel technique with minimal tissue damage, less recurrences, no or minimal incontinence rates, good wound healing and minimal surgical site defect is taken into consideration.

Case details:

A 59 years old farmer male patient came to our OPD with the complaints of pain and pus like discharge from perianal region since 2 years. Patient has gradual start of the pain was of throbbing type and has remission and exacerbation phases of the pain. The pain was of non-radiating type and used to increase after heavy or strenuous works. He also complained pus mixed watery foul discharge from the perianal region. The discharge used to subside for some days and then used to reappear again. These complaints made patient to difficult to sit for a long duration in a place. There was no history of loss of weight or loss of appetite. No any history of night sweats was present. Patient did not have any significant past medical and surgical history. He was non-vegetarian and had good bowel and bladder habit and did not have any addictions.

General physical and mental examinations did not reveal any significant abnormality.

Per rectal examination:

Inspection: Was done in lithotomy position

3 external openings of the fistula-in-ano were observed with marked perianal sepsis. 1 at 10 o'clock position around 5 cm away from anal verge, another opening at 9 o'clock position around 9 cm away from anal verge and other opening was present at 8 o'clock position around 15 cm away from the anal verge. The overlying skin was discolored and there were 2 haemorrhoidal masses were present at anal verge.

Palpation:

Induration was felt around the fistulous tracks towards internal openings around 7-8 o'clock position. Mild tenderness was present with mild raise in temperature. Pus came out of the external opening while pressing towards internal opening.

Digital rectal examination:

Pit like depression were felt around 6 and 9 o'clock position with normal tonicity of sphincters.

Tenderness was present around pit like depressions. No other internal masses were felt.

Proctoscopic examination:

Proctoscopy revealed eryhtematous anal mucosa at 6 and 9 o'clock position. Internal haemorrhoids were present in primary sites.

Probing was not done to the patient in OPD.

Patient was advised for MRI fistulogram and the report came as following:

Complex right sided –trans- sphincteric fistulous tract with few side tracts involving the puborectalis muscle and extending up to the levator ani muscle (but without supralevator extension). Single internal opening- in the upper third of the anus at about 7-8 O' clock position and at least three separate cutaneous openings.

On the basis of clinical examination and MRI fistulogram report the patient was diagnosed to be having complex right sided trans-sphincteric fistula-in-ano with ramifications.

The pre-operative investigations were normal so the patient was planned for surgery under saddle block.

Patient was taken into operation theatre after all pre-operative preparations and saddle block was induced by anaesthesist afterwards patient was placed into lithotomy position.

After painting and draping, probing was done from opening at 10 o'clock position and it came out of internal opening at 9 o'clock position which was not visible in MRI reports. Then a retrograde probing from internal opening at 6 o'clock was done and an artificial surgical window was created at 7 o'clock position which is the point of interception. Now from 2 other external openings at 8 and 9 o'clock position another external opening at 10 o'clock position were connected. By taking reference of IFTAK technique a long trans-sphincteric fistula track is intercepted around external opening at 7 o'clock position doing a little modification, here external to external openings were also connected and drained through plain surgical threads or barbour threads. Infected crypts at 6 and 9 o'clock were addressed through *Ksharasutra* (Ayurvedic drugs coated surgical thread) application. All threads were changed weekly till cut through occurs. After tracks connected to internal openings were cut open, the threads kept outside external to external openings which were kept for drainage only were removed.

In the post-operative care from next day patient was advised for boiled lukewarm water sitz bath and daily dressing with *Jatyadi Taila* (Medicated ayurvedic oil). Patient was under antibiotics and analgesics coverage for 1 week and was also prescribed an ayurvedic laxative. The draining threads connected to internal openings were replaced with *Ksharasutra* after 1 week in dressing room and other threads were replaced with new barbour threads. The *Ksharasutra* was tied little tighter than previous one in subsequent settings and other draining threads were tied loose.

RESULTS

Both tracks connected to internal openings were cut through after 2 months and complete wound healing occurred 4 weeks afterwards. There were no significant post-operative adverse events and patient tolerated the treatment very well. Patient has relief from all his previous sign and symptoms and is leading a good quality life. Till the date there is no any recurrence or any treatment related complications like incontinence. The treatment was affordable to the patient.

DISCUSSION

In complex fistula-in-ano, only sphincter-saving procedures should be used. The goal of surgery is first to remove or destroy the

fistulous tract while preserving the integrity of the sphincters, and then to identify risk factors for the recurrence of fistula-in-ano[11]. There are various new modalities for treating complex anal fistula; still there are no satisfactory results from any of those treatment modalities. These circumstances need new or alternative insights upon the management of complex anal fistula where fistula is treated well with no or very less recurrences and complications.

Ksharasutra has been described in ancient Ayurveda texts *Charak Samhita*[9] and *Sushruta Samhita*[12] in the management of Bhagandara (Fistula-in-ano). Formerly, *Ksharasutra* was used to be applied all over the track from external to internal opening which took long duration for fistula to heal and is not very accepted by patients with complex and long fistulous tracks. Now various integrated methods came for managing fistulous track along with use of *Ksharasutra*.

IFTAK[10] technique or BHU technique is one of the novel methods in the field of Ayurveda for managing complex fistula-in-ano. The important and must to do process in the IFTAK is to eradicate the infected anal crypts. The basis of procedure is to intercept the fistulous track at external sphincter level area so that the distal track get separated from the primary source of infection and to eradicate the infection at the level of anal crypts at the level of pectinate line or dentate line using *Ksharasutra* or medicated surgical thread without laying open of the distal part of fistulous track up to the site of interception which gradually heals up.

Identification of internal anal crypts is the most crucial step in this technique and if failed to identify, recurrence occurs invariably. Thus our patient was managed taking reference of IFTAK technique with little modification. We kept plain surgical threads to separated tracks to facilitate the proper drainage from other side tracks.

To address the infected crypts, *Ksharasutra* is used which is coated with *Haridra* (Turmeric powder), Snuhiksheera (Latex of *Euphorbia Neriifolia*) and *Apamarga Kshara* (Alkaline substance prepared from water soluble ash of plant *Achyranthes aspera*)[13]. Presence of thread makes a passage for drainage of fistulous track and which is in direct contact with the track causing physical and chemical necrosis of the unhealthy epithelial tissues of the track. *Ksharasutra* has alkalinity due to presence of *Apamarga Kshara* which destroys unhealthy tissues of the track and also infected anal crypts by fat saponification and liquefaction necrosis mechanism[10]. *Haridra* has anti-inflammatory, anti-allergic, anti-septic and wound healing properties[14]. *Snuhi ksheera* is proteolytic hence dissolves the fibrous tissue of *Bhagandara* track[15]. Medicines are adhered in thread with the help of latex. *Ksharasutra* hence, because of presence of thread coated with 3 different medicines removes the infected anal glands and the surgical window created at the level of external sphincter separates track hence there is no connection of the distal part of the track with internal opening by which the distal tracks when drained properly collapse on its own and there is very less chance of recurrence.

Along with all the above treatment daily twice sitz bath was advised to the patient which helps in removing debris and slough out of the wound, warm sitz bath also increases blood flow hence causing effective wound healing[16]. For the patient daily dressing was done with *Jatyadi Taila* which has antibacterial, anti-inflammatory, analgesic properties[17] which

lead to timely healing of the wound.

CONCLUSION

Management of complex fistula-in-ano is of great challenge for surgeons. Managing such cases need complete removal of infected anal crypts with least damage possible and without less or no surgical or disease related complications. Addressing all these aspects of the treatment is possible through ancient technique of treating fistula-in-ano through *Ksharasutra*. The interception methods developed in modern era in the field of Ayurveda lead to even better outcomes in treating complex fistula-in-ano. So, intercepting long fistulous tracks closer to anal verge and application of *Ksharasutra* to cure anal cryptoglandular infection can be considered for treating complex anal fistulas.

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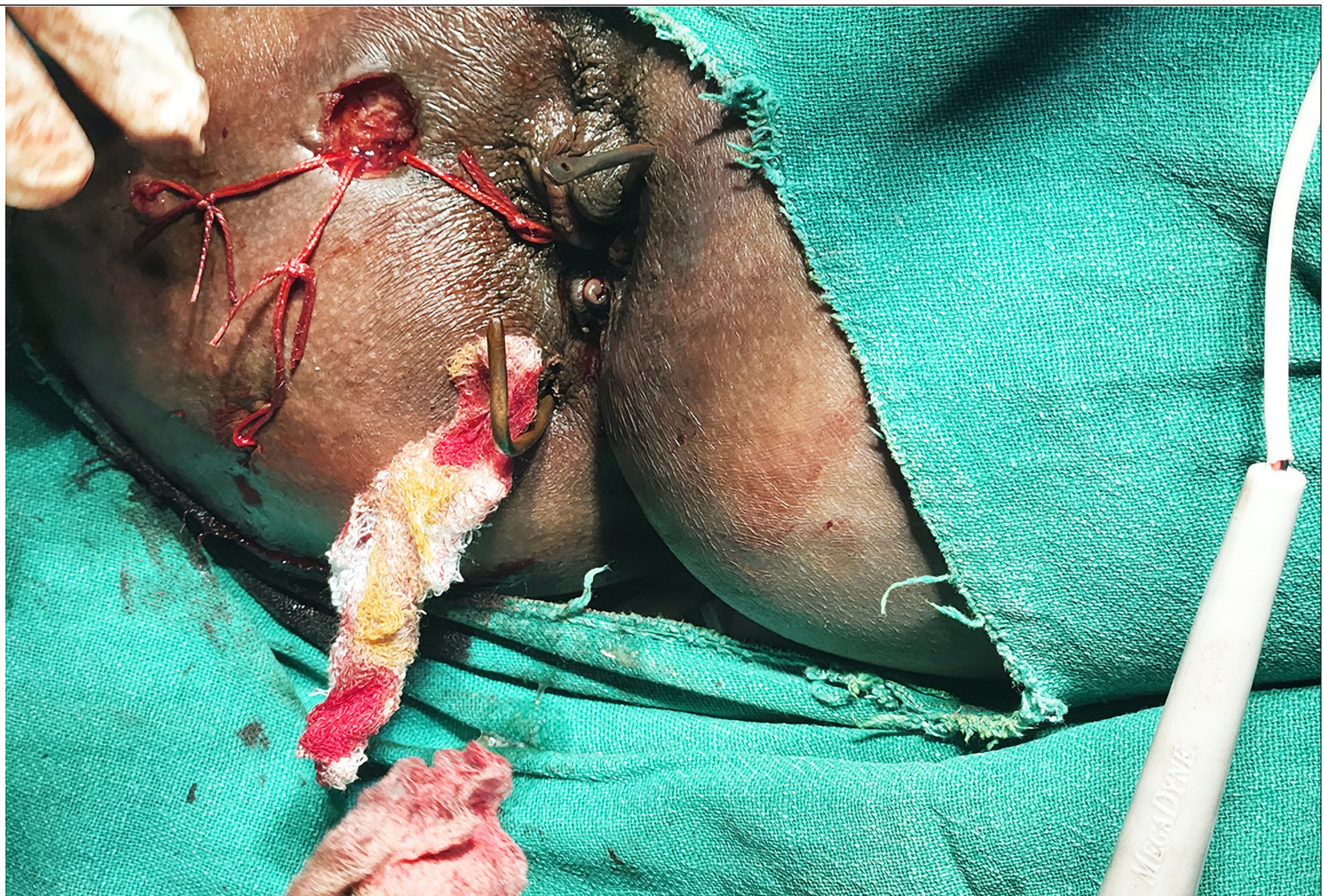

***Figure 1:** Intra-operative picture showing track around 10 o'clock external opening was partially excised and a draining barbour thread was connected to internal opening at 9 o'clock position; external to external openings were connected through barbour threads from 8 & 9 o'clock to 10 o'clock position. Retrograde probing was done at 6 o'clock position from internal opening to make track interception at 7 o'clock position where a draining barbour thread was applied.*

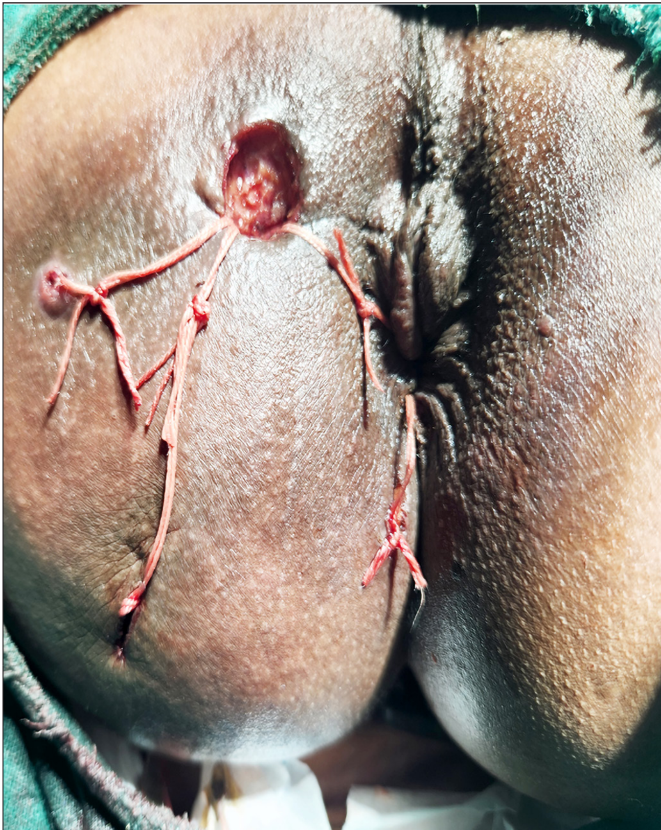

Figure 2: Final look of the peri-anal region after the surgery

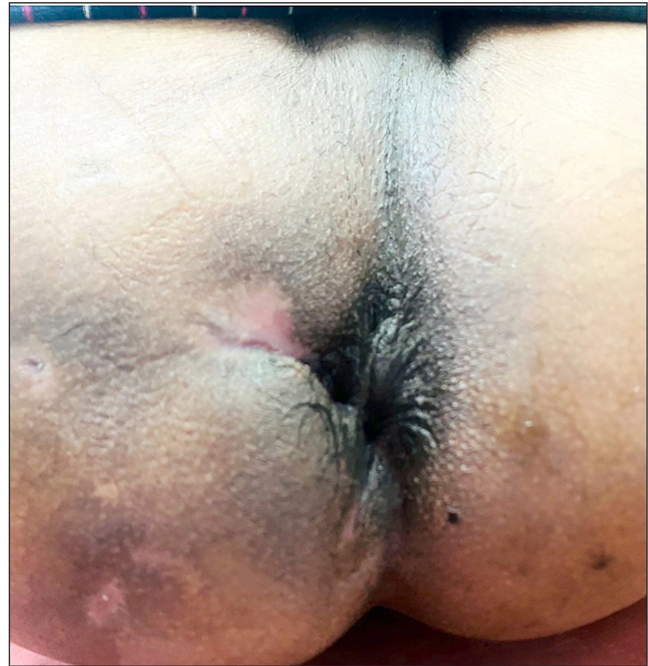

Figure 3: appearance of perianal region after 3 months. Note the scar marks around external openings at 7, 8, 9 and 10 o'clock positions. The skin discoloration was almost resolved. There was no any discharge from the wound while pressing also. Tenderness was absent and sphincters tonicity was normal. Wound healed completely with very minimal scar marks.