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Name of Journal: *World Journal of Gastroenterology*

Manuscript NO: 71098

Manuscript Type: THERAPEUTIC AND DIAGNOSTIC GUIDELINES

Guidelines to diagnose and treat peri-levator high-5 anal fistulas: supralelevator, suprasphincteric, extrasphincteric, RIFIL and high intrarectal fistulas

Guidelines to treat high-5 anal fistulas

Pankaj Garg, Vipul D Yagnik, Sushil Dawka, Baljit Kaur, Geetha R Menon

Abstract

Supralelevator, suprasphincteric and extrasphincteric fistulas are well-known high anal fistulas which are considered the most complex and extremely challenging fistulas to manage. High intrarectal fistulas (high fistulas in muscle layers of the rectal wall) were described by Parks *et al* in 1976. MRI has brought more clarity to the pathophysiology of these fistulas. Along with these fistulas, a new type of complex fistula, RIFIL (fistula at the roof of ischiorectal fossa inside the levator ani muscle), has been described. The diagnosis, management and prognosis of RIFIL fistulas is reported to be even worse than supralelevator and suprasphincteric fistulas. There is a lot of confusion regarding the anatomy, diagnosis and management of these five fistulas. The main reason for this is the paucity of literature about these fistulas. The common feature of all these fistulas is their complete involvement of the external anal sphincter (EAS). Therefore, fistulotomy, the simplest and the most commonly performed procedure, is practically ruled out in these fistulas and a sphincter-saving procedure needs to be performed. Recent advances have provided new insights into the anatomy, radiological modalities, diagnosis and management of these five high fistulas. These have been discussed and guidelines formulated for the diagnosis and treatment of these fistulas for the first time in this paper.

Key Words: Anal fistula; supralelevator; suprasphincteric; extrasphincteric; MRI

Garg P, Yagnik VD, Dawka S, Kaur B, Menon GR. Guidelines to diagnose and treat peri-levator high-5 anal fistulas: supralelevator, suprasphincteric, extrasphincteric, RIFIL and high intrarectal fistulas. *World J Gastroenterol* 2021; In press

Core Tip: These are the first published guidelines to manage the five peri-levator anal fistulas that involve almost the complete external anal sphincter and have therefore been clubbed together as high-5 fistulas. These are supralelevator, suprasphincteric, extrasphincteric, high intrarectal and RIFIL fistulas. The diagnosis as well as the

management of these five fistulas is quite challenging. MRI is the best modality to accurately delineate these fistulas. Once diagnosed, care should be exercised to avoid sphincter-cutting procedures (fistulotomy) as the risk of incontinence would be very high. Sphincter-sparing procedures should be done. However, there is little literature available on satisfactory management of these fistulas.

INTRODUCTION

Anal fistulas are feared by patients and surgeons alike^[1-4]. The prime reasons for this are difficulty in understanding the pathophysiology, risk of debilitating incontinence and high recurrence rates especially in complex fistulas^[5-8]. Amongst the category of complex fistulas, the three well-known notorious fistulas are supralelevator, suprasphincteric and extrasphincteric fistulas^[9-16]. Another less known fistula is the high intra-rectal fistula which occurs by cephalad extension of the fistula between the internal anal sphincter (IAS) and conjoint longitudinal muscle (CLM). This fistula was first described by Parks *et al* in 1976^[17]. Recently, another fistula, RIFIL (fistula at the roof of ischiorectal fossa inside the levator ani muscle) has also joined the category of these high fistulas^[18]. RIFIL fistulas are also highly complex and involve the complete external anal sphincter (EAS). The common feature of these five fistulas is that they are quite high as these reach up to the levator muscle and involve almost the complete EAS (Figure-1). Hence, these five fistulas have been clubbed together as high-5 fistulas and are discussed in detail below.

List of High-Five anal fistulas

Supralelevator (Figure-2,3)

Suprasphincteric (Figure-4,5,6)

Extrasphincteric (Figure-7)

High intra-rectal (Figure-8,9,3)^[17]

RIFIL (figure-10,11,12)^[18]

These fistulas are considered most dreaded because understanding their anatomy and pathophysiology, proper diagnosis and successful safe treatment are quite challenging. All these five fistulas involve almost the complete EAS^[2, 19, 20] (Figure: 2-12). As the EAS plays a major role in continence, muscle-dividing procedures like fistulotomy or cutting setons are strictly contraindicated in these fistulas. In fact, fistulotomy with primary sphincter reconstruction or fistulectomy with primary sphincter reconstruction are also best avoided in these patients^[4, 21-25]. Therefore, the choice of procedures becomes limited. Of these, the extrasphincteric is the only type which is trans-levator whereas the other four fistulas (supralevator, sphincteric, high intrarectal and RIFIL) are peri-levator fistulas as they do not traverse through the levator muscle.

The outline of the article is

Challenges in managing Hi-5 fistulas

Confusion about the pathophysiology of these fistulas

Difficulty in diagnosis

Complete involvement of external anal sphincter (EAS)

Presence of additional supralevator rectal opening (ASRO)

Detection of underlying secondary pathology

Methods used to formulate management guidelines

Management guidelines

CHALLENGES IN MANAGING THESE FISTULAS

Confusion about pathophysiology of these fistulas

There is a lot of confusion amongst surgeons about the exact anatomy, the pathways of spread and the extent of these fistulas^[5]. Not uncommonly, a high transsphincteric fistula is labelled as an extrasphincteric fistula and a suprasphincteric fistula is reported as a high transsphincteric fistula^[5].

In order to understand the pathways of extension of these fistulas, it is important to understand the anatomy of the anal canal. There are three muscle layers in the

sphincter-complex in the anorectum which are downward extensions of the muscle layers of the gut. There are potential spaces between these muscle layers in which the fistula and pus can spread^[26] (Figure-1,2,4,7,8,10)

The **three muscle layers in the sphincter-complex**^[26] (Figure-1) are

Inner circular muscle layer of gut continues downwards in the anal sphincter complex as internal anal sphincter (IAS)

Outer longitudinal muscle layer of gut continues downwards in the anal sphincter complex as conjoint longitudinal muscle (CLM)

Puborectalis component of levator ani muscle continues downwards in the anal sphincter complex as external anal sphincter (EAS)

Conventionally, it was assumed that inside the sphincter-complex, there is only one space where the fistula extends and this space between the IAS and EAS was labelled as the 'intersphincteric space'. However, with the availability of higher resolution MRI and increasing experience, it has been demonstrated that there are three potential spaces associated with these muscle layers through which the fistula can extend^[26].

The **three potential ¹spaces in the anal sphincter-complex** (Figure-1) are

Inner intersphincteric space (inner space): Between IAS and CLM

Middle intersphincteric space (middle space): Between CLM and EAS (conventional intersphincteric space)

Outer-sphincteric space (outer space): Between the lateral muscle fibers of EAS and its covering fascia^[26]

The anal fistula, usually initiating at crypt glands at the level of the dentate line, can extend superiorly (cephalad) in any of these three spaces.

The fistulas traversing superiorly in

Inner intersphincteric space (inner space) between IAS and CLM in the rectal wall to become a **high intrarectal fistula** as these fistulas are present between the muscle layers

of the rectal wall ^[17]. At times, these are erroneously labelled as submucous fistula^[17] (Figure-8,9,3).

Middle intersphincteric space (middle space) between CLM and EAS become a **supralelevator fistula** (if it continues into the supralelevator space) (Figure-2,3) or a **suprasphincteric fistula** (if pus extending superiorly in the middle space reaches up to the top of the EAS and then traverses through the junction between the EAS and puborectalis to enter the ischiorectal fossa^[27-31]) (Figure-4,5,6).

Outer-sphincteric space (outer space) between the EAS and its lateral fascia becomes a **RIFIL** (fistula at the roof of ischiorectal fossa inside the levator ani muscle) fistula^[18] (Figure-10,11,12).

Thus, the definition of these five fistulas is:

Supralelevator (Figure-2,3): These fistulas traverse in the middle intersphincteric space to enter the supralelevator space. The fistula may open into the rectum through an additional high rectal opening in the supralelevator space (Figure-3,6).

Suprasphincteric (Figure-4,5,6)- These fistulas extend superiorly in the middle intersphincteric space to reach up to the top of the EAS and then traverses through the junction between the EAS and puborectalis to enter the ischiorectal fossa

Extrasphincteric (Figure-7)- These fistulas traverse through the ischiorectal fossa and enter the supralelevator space penetrating the levator muscle. They generally do not traverse through the sphincter-complex (EAS and IAS) due to which they are labelled as 'extra-sphincteric' fistulas.

High intra-rectal (Figure-8,9,3)- These fistulas traverse cephalad between IAS and CLM in the rectal wall and is thus present between the muscle layers of the rectal wall.

RIFIL (fistula at the roof of ischiorectal fossa inside the levator ani muscle) (figure-10,11,12)- These fistulas traverse the EAS but do not enter the ischiorectal fossa. They extend cephalad between the EAS and its lateral fascia to continue on the undersurface of puborectalis and levator ani muscle^[18].

Incidence

In recently published large cohorts, the prevalence of these high-5 fistulas has been highlighted^[18, 32]. The incidence of these fistulas in a cohort of 419 consecutively operated patients over a two year period were RIFIL – 10% (42/419), supralelevator- 9.5% (40/419), suprasphincteric- 5.5% (23/ 419) and extrasphincteric- 0^[18, 32].

Difficulty in diagnosis

As these fistulas are deep and high, they are extremely difficult to diagnose on clinical examination. It usually requires advanced imaging modalities, MRI or transrectal ultrasound (TRUS), to diagnose these fistulas^[33-40]. Both MRI and 3D- TRUS are very effective in delineating various fistula parameters viz. the internal opening, primary tracts and secondary extensions^[33-39], though MRI has a slight edge over TRUS. It is really impressive that in the pre-MRI era, doyens in the field like Parks, Gordon *et al* could describe these deep fistulas with a reasonably high level of accuracy^[17].

MRI helps to clearly differentiate between supralelevator, suprasphincteric, high intrarectal and RIFIL fistulas^[41, 42]. Rather it would not be wrong to say that MRI is mandatory to properly diagnose these fistulas. Therefore, whenever a fistula has recurred several times, or a tract or side branch of the main fistula is seen extending superiorly during surgery, an MRI should be done to rule out these fistulas^[41, 42].

Status of extrasphincteric fistulas

Increasing experience with MRI in fistulas has highlighted that extrasphincteric fistulas do not occur or are extremely rare^[43]. It stands to reason that it is almost impossible for a fistula in the ischiorectal fossa to penetrate through the strong levator plate when it can extend with ease in the surrounding fat of the ischiorectal fossa^[43]. The only likely possibility for an extrasphincteric fistula to occur is iatrogenic when an artery forceps in a high transsphincteric fistula is pushed through the levator muscle. Even this seems improbable as it would require a lot of force by the operating surgeon. Moreover, due to increased awareness amongst surgeons of iatrogenic injuries, better understanding of anatomy, and easy availability of advanced radiological modalities, these iatrogenic

blunders seem exceedingly unlikely. Due to this, extrasphincteric fistulas are not seen (or are extremely rare) these days^[43]. It is quite possible that the fistulas diagnosed as extrasphincteric fistulas in the pre-MRI era were perhaps supralelevator or RIFIL fistulas. Understandably, in the absence of MRI, it is extremely difficult to differentiate between an extrasphincteric fistula and other deep fistulas. So, a diagnosis of extrasphincteric fistula should be made only after due deliberation and detailed analysis of MRI^[43].

Complete involvement of external anal sphincter (EAS)

The main challenge in these five fistulas is that they involve almost the complete external anal sphincter (EAS) (Figures-2,4,7,8,10). The EAS plays a major role in maintaining continence and risk of damage to the EAS is very high in these fistulas. Therefore, the risk of incontinence is very high in these fistulas due to which these fistulas are so dreaded^[2, 7, 8, 44]. The most commonly performed procedure, fistulotomy, is contraindicated in these fistulas^[44]. There is little published data and there are no standard guidelines to manage these fistulas. So, the fear of these fistulas amongst surgeons is not difficult to understand.

Presence of additional supralelevator rectal opening (ASRO)

One of the features that make these fistulas more challenging is the presence of ²an additional supralelevator rectal opening (ASRO) along with a primary internal opening at the dentate line^[9]. In a large cohort, ASRO was present in 2.8% (23/836) anal fistulas, but in supralelevator fistulas the incidence was 16.6% (23/138)^[9]. At times, the presence of ASRO is detected accidentally during surgery (intraoperatively) when a colored solution injected into the external opening comes out through the primary internal opening at the dentate line as well as through the ASRO^[9]. In many cases, a granulation polyp or a papilla can be seen at the site of the ASRO. However, ASRO can be diagnosed preoperatively with the help of MRI in almost every case^[9]. MRI is an excellent tool to diagnose ASRO with a high level of accuracy^[9].

The management of ASRO seems challenging. Closure of an opening high up in the rectum which, at times, is even difficult to reach through the transanal route is not easy. However, there is a sliver of relief in these otherwise complex fistulas. A recent study has demonstrated that even if nothing is done to ASRO (they are left as such), there is no impact on ultimate fistula healing^[9].

There is an explanation for this surprising finding. Anal fistulas usually initiate in crypt glands located at the dentate line. The fistula then can extend in different directions from here. Some fistulas or abscesses extend superiorly and enter the supralelevator space^[9]. In a small subset (16%), the pressure generated by a supralelevator abscess is so high that the abscess ruptures into the rectum, thus creating an ASRO. So, during formation, the flow of infection (and bacteria) in ASRO is from the supralelevator space into the rectum^[9]. This continues in this manner because, unlike in the anal canal where intraluminal pressure rises during defecation, pressures in the mid-rectum are quite low (as the rectum is primarily a storage organ). Therefore, the bacteria usually enter the fistula tract from the primary internal opening at the dentate line, suppuration occurs, and pus egresses through the external opening and the ASRO (if present)^[9]. Hence, ultimate healing of the fistula depends primarily on successful closure of the primary internal opening at the dentate line. Once the primary internal opening at the dentate line heals, the fistula heals irrespective of whether the ASRO is closed or open^[9]. Therefore, it is a reassuring fact that ASRO left intact does not affect the ultimate outcome^[9].

Detection of underlying secondary pathology

These high fistulas are more complex and refractory to treatment as compared to other fistulas. The incidence of associated complicating pathology like Crohn's disease and tuberculosis is higher in these fistulas^[43, 45-48]. Therefore, it is important that these diseases should be ruled out whenever any of these high fistulas are diagnosed or suspected.

In regions where Crohn's disease is common, a colonoscopy should be done in all cases of high fistulas^[46, 49]. On the other hand, in regions where tuberculosis is common, polymerase chain-reaction (PCR) should be done in samples from the fistula (pus or fistula tract wall or tract lining)^[43, 50]. In a large series published from a TB-endemic region (India), tuberculosis was detected in 10% (133/1336) of tested samples (fistula tract lining or pus)^[50]. The detection rate of tuberculosis was 12.5% (129/1034) by polymerase chain-reaction (PCR), 1.5% (3/197) by histopathology and 0.9% (1/105) by GeneXpert tests^[50]. Therefore, polymerase chain-reaction (PCR) is significantly more sensitive than histopathology or GeneXpert to detect tuberculosis^[50]. However, in spite of high sensitivity, it is not uncommon that tuberculosis is missed in the first sample. Therefore, in regions where tuberculosis is endemic, it is recommended that repeated samples are sent for testing especially in more complex refractory fistulas^[50].

METHODS USED TO FORMULATE MANAGEMENT GUIDELINES

A search was performed on MEDLINE, PubMed, EMBASE, and the Cochrane Database of Collected Reviews from January 1975 to September 2021. Keyword combinations using MeSH terms included supralelevator, suprasphincteric, extrasphincteric, intrarectal, abscess, fistula, fistula-in-ano, anal, rectal, perianal, perineal, seton, fistula plug, fibrin glue, advancement flap, tuberculosis, Crohn's disease, ligation of intersphincteric tract, LIFT, FPR, fistulectomy with primary sphincter repair, TROPIS and stem cells.

Various guidelines such as GRADE^[51, 52], RIGHT^[53], AGREE^[54] were evaluated but considering the rarity of the disease condition (Hi-5 fistulas) in the study, the Levels of Evidence for Therapeutic Studies developed by Centre for Evidence-Based Medicine, <http://www.cebm.net>. (Oxford, UK) (Table-1) and Grade Practice Recommendations recommended by American Society of Plastic Surgeons (Table-2) were utilized^[55]. Each diagnostic and therapeutic intervention was assigned a 'level of evidence' from 1A to 5 (1 A being the strongest evidence and 5 being the weakest) (Table-1) and then a 'grade

of recommendation' was awarded ranging from 'A' to 'D' ('A' being a strong recommendation and 'D' being a weak option) (Table-2).

Authors (PG, VDY) reviewed all English language articles and tabulated all the evidence available and allotted the level of evidence. After that, the grade of recommendation was decided with consensus of all the authors.

MANAGEMENT GUIDELINES

Diagnostic evaluation of Hi-5 fistulas

MRI or transrectal ultrasound (TRUS) are preferred modalities to evaluate Hi-5 fistulas. MRI is better than TRUS to evaluate high secondary extensions. Level of Evidence- 2B. Grade of recommendation-B

MRI and TRUS are the diagnostic modalities of choice to evaluate complex anal fistulas^[33-39]. MRI and 3D-TRUS have comparable efficacy in outlining the internal opening and primary tracts but MRI is significantly more effective than 3D-TRUS in detecting deep secondary extensions^[56]. The sensitivity of 3D-TRUS to detect deep secondary extensions was 73.9% while MRI had sensitivity of 97% ($P = 0.041$)^[56]. Therefore, MRI is the preferred modality to diagnose high fistulas especially the Hi-5 fistulas^[19, 57].

Surgical procedure

Due to the challenging factors discussed above, the management of Hi-5 fistulas is quite difficult and far from satisfactory. Apart from the associated complex parameters, the additional problem is minimal experience or published data on the management of these fistulas. Due to this, the quality of data is of a low evidence level.

As discussed earlier, due to complete involvement of EAS, the most commonly performed procedure, fistulotomy, is contraindicated in these fistulas^[44] unless it is

coupled with primary sphincter repair. The newer sphincter-sparing procedures like video-assisted anal fistula treatment (VAAFT)^[58, 59], fistula laser closure (FiLaC)^[60, 61], over-the scope clip (OTSC)^[62-64], anal fistula plug (AFP)^[65, 66], stem cells^[49, 67] *etc.* have dismal success rates in complex fistulas. In fact, there are hardly any studies that have analyzed the success rates of these newer procedures in Hi-5 fistulas.

Therefore, the sphincter-preserving procedures, ligation of intersphincteric fistula tract (LIFT), fistulectomy with primary sphincter reconstruction (FPR), advancement flaps and transanal opening of the intersphincteric space (TROPIS), seem more suitable procedures for Hi-5 fistulas.

Transanal opening of the intersphincteric space (TROPIS) provides a ray of hope as it has been shown to have satisfactory results in these fistulas^[5, 6, 32, 43, 68]. In the TROPIS procedure, the intersphincteric space ¹ is laid open in the anal canal and the resultant wound is allowed to heal by secondary intention^[32, 43]. The transsphincteric tracts (tracts lateral to the EAS) are thoroughly curetted and cleaned^[6, 68]. Thus, the tracts on both sides of the EAS are managed separately (tracts inner to the EAS are laid open into the anal canal and tracts outside the EAS are curetted and cleaned) and the EAS is not cut or damaged at all^[32, 43]. Due to this, it has been shown that there is no deterioration in continence after the TROPIS procedure^[32, 43].

The reason for this higher success rate of the TROPIS procedure could be that, unlike other procedures, TROPIS adequately ⁴ tackles the sepsis in the intersphincteric space^[6, 68]. It is now understood that the pus/sepsis in the intersphincteric part of the fistula tract is like an abscess in a closed space^[43]. Therefore, this sepsis is best managed in the manner an abscess anywhere else is managed- derooft the abscess cavity and allowing it to heal by secondary intention^[43].

Supralevator fistulas

Supralevator abscesses can be drained into the rectum with a moderate success rate.

Level of Evidence- 2B. Grade of recommendation-B

A supralelevator abscess can be drained into the rectum^[12, 14, 16, 69-71]. This not only leads to resolution of the acute symptoms but also leads to fistula healing in many cases^[12, 71]. Garcia-Granero *A et al* drained the supralelevator abscess into the rectum in four patients and all of them healed^[12].

Fistulectomy with or without advancement flap may be done in selected cases. Level of Evidence- 4. Grade of recommendation-D

Fistulectomy alone or coupled with an endorectal advancement flap has shown a moderate success rate^[71]. Van Onkelen *et al* performed advancement flap in three patients after draining the supralelevator abscess. All patients healed but multiple surgeries were required in order to achieve fistula healing^[71].

Supralelevator fistula can be managed with laying open of the supralelevator extension into the rectum through the transanal route (TROPIS) procedure. Level of Evidence- 2B. Grade of recommendation-B

The TROPIS procedure has shown satisfactory healing rates in supralelevator fistulas^[9, 32, 72, 73]. The success rate was 84.6% (11/13) in the initial series^[72] and 82.1% (92/112) on long-term follow-up (median 30 mo)^[32].

LIFT and FPR can be done in selected cases. Level of Evidence- 5. Grade of recommendation-D

There are a few studies in which LFT and FPR have shown good success rates (80-91%) in high complex fistulas including supralelevator fistulas^[1, 22, 74, 75]. but data for these procedures specific to supralelevator fistulas is not available.

Suprasphincteric fistulas

Advancement flap, fistulotomy/fistulectomy with primary sphincter repair and stem cells have moderate success rates. Level of Evidence- 2B. Grade of recommendation-D

The success rate of advancement flap, fistulotomy with sphincter reconstruction and stem cells range from 70-85%, though the sample size was quite small^[76, 77]. Perez *et al* compared advancement flap *vs* fistulotomy with sphincter reconstruction in suprasphincteric fistulas and the healing rate was 80% (4/5) and 83.3% (5/6) respectively^[76]. However, the risk of cutting the entire EAS and then repairing the same seems a difficult option to most surgeons. Also, in the rare eventuality of suture dehiscence, the risk of incontinence would be very high.

Fibrin glue has a poor success rate in suprasphincteric fistulas. Level of Evidence- 2B. Grade of recommendation-C

Garcia-Olmo *et al* compared the healing rate of fibrin glue *vs* adipose stem cells in suprasphincteric fistulas^[77]. The healing rate in the fibrin glue group was 8% (2/16) while it was 71% (10/14) in the stem cells group^[77].

The TROPIS procedure has a good success rate with minimal impact on continence. Level of Evidence- 4. Grade of recommendation-B

TROPIS has shown promising results in suprasphincteric fistulas. Out of 14 suprasphincteric fistulas, 78.6% (11/14) patients were cured with no deterioration in continence levels after surgery on long-term follow-up (median 30 mo)^[32].

LIFT can be done in selected cases but is technically difficult. Level of Evidence- 5. Grade of recommendation-D

There are studies in which LFT has shown a good success rate (80-91%) in high complex fistulas [1, 22, 74, 75]. but data for LIFT exclusive to supralelevator fistulas is not available. It is also expected that performing the LIFT procedure in suprasphincteric fistulas

(ligating the intersphincteric tract high up in the intersphincteric plane) would be a technically demanding procedure.

Extrasphincteric fistulas

Temporary colostomy with management of the primary pathology. Level of Evidence- 5. Grade of recommendation-D

As discussed above, extrasphincteric fistulas are extremely rare these days. Due to this, there is practically no data available on the management of these fistulas. As most of these fistulas are caused by secondary pelvic pathology or iatrogenic factors, a diverting stoma along with management of the underlying cause would be the mainstay of treatment^[17].

High intra-rectal fistulas

Intra-anal fistulotomy has a high success rate with minimal impact on continence. Level of Evidence- 4. Grade of recommendation-B

These fistulas are perhaps the easiest to treat. Simple intra-rectal fistulotomy (laying open the fistula tract into the anorectum) would cure these fistulas with a high success rate (>90%)^[17, 32].

RIFIL fistulas (fistula at the roof of ischiorectal fossa inside the levator ani muscle)

TROPIS has a moderate success rate with minimal impact on continence. Level of Evidence- 2B. Grade of recommendation-B

RIFIL fistulas are challenging to manage because access to the RIFIL component might become difficult. TROPIS has shown a moderate success rate in RIFIL fistulas^[18]. The healing rate in RIFIL fistulas by the TROPIS procedure was 69.4% (25/36) with a follow-up (median) of 12 mo^[18]. There was no negative impact on continence following surgery.

LIFT and FPR are expected to have a moderate success rate. Level of Evidence- 5.

Grade of recommendation-D

RIFIL fistulas have been recently described [18] and till now, there are no studies of LIFT or FPR in RIFIL fistulas; however, conceptually it is expected that these procedures would also prove at least moderately effective for these fistulas.

CONCLUSION

Conclusions

Anal fistulas that reach up to the levator muscle and involve almost the complete external anal sphincter have been clubbed together as high-5 fistulas. These comprise supralelevator, suprasphincteric, extrasphincteric, high intrarectal and RIFIL fistulas. The diagnosis as well as the management of these five fistulas is quite challenging. Advanced radiological modalities, preferably MRI, are needed to accurately delineate these fistulas. Once diagnosed, care should be exercised to avoid sphincter-cutting procedures like fistulotomy or cutting seton in these fistulas as the risk of incontinence would be very high. Sphincter-sparing procedures like TROPIS or LIFT should be carried out in these fistulas. These guidelines may help improve understanding and outcomes in the management of these complex fistulas

ACKNOWLEDGEMENTS

Nil

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SIMILARITY INDEX

PRIMARY SOURCES

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