



A new understanding of the principles in the management of complex anal fistula



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ABSTRACT

The management of complex anal fistula is confusing and far from satisfactory. Due to this reason, most colorectal surgeons are not comfortable dealing with this disease and tend to avoid it. Despite the innovation of several new procedures in the last few years, the cure rate of complex anal fistula has not improved much. This points out that there is some flaw with our current understanding of the disease pathogenesis as well as its management.

All the surgical procedures described to treat anal fistulas in complex anal fistulas were analyzed. The reasons were sought as why most of the procedures don't work well in complex fistulas. Based on that, the pathophysiology of complex anal fistula was understood from a totally new perspective.

The new hypothesis has been categorized in three cardinal principles-Intersphincteric tract is like an abscess in a closed space (ISTAC), draining all pus and ensuring continuous drainage (DRAPED) and healing occurs progressively till it is interrupted irreversibly by a collection (HOPTIC). The surgical procedures which take care of all these three principles have a high success rate in complex fistulas. The success rate falls in the procedures which ignore one or more of these principles.

These principles are logical and are basics of wound healing process anywhere in the body but were somehow ignored in the management of complex anal fistulas. These principles fill the void in the understanding of complex anal fistula and when integrated in the management, the cure rate improves drastically.

Introduction

Complex anal fistula is one disease which is neither fully understood nor satisfactorily managed even today. Unfortunately, the phrase by Lockhart-Mummery in 1929, "Probably more surgical reputations have been damaged by the unsuccessful treatment of an anal fistula than by any other surgery", still holds largely true. But analyzing the work published in the last decade, it seems that the mystery behind refractoriness of complex anal fistulas to heal has perhaps been solved.

The detailed analysis of existing procedures like fistulotomy [1], fistulectomy with primary sphincter repair (FPR) [2], advancement flap and various other procedures innovated during the last decade like anal fistula plug (AFP) [3], ligation of intersphincteric fistula tract (LIFT) [4,5], video-assisted anal fistula treatment (VAAFT) [6] and transanal opening of intersphincteric space (TROPIS) [7,8] helped to understand the three cardinal principles which are prerequisite and if followed, are sufficient to achieve high cure rate in complex anal fistulas.

Hypothesis

The hypothesis is that three cardinal principles discussed below-ISTAC, DRAPED and HOPTIC – are logical and derived from the basics principles of the wound healing. These principles fill the void in the understanding of complex anal fistula but were completely ignored till

date. The procedures which take care of these three principles are expected to have high success rate in complex anal fistula and the procedures which ignore these principles would have high failure rates.

ISTAC – Intersphincteric tract is like an abscess in a closed space

The fact which seems to have been missed/ignored over the years is the significance of the tract/sepsis in the intersphincteric space [7]. Almost all complex fistulas have an element of intersphincteric extension [7]. The sepsis in the intersphincteric space is quite similar to an abscess in a closed space (Fig. 1) [8,9]. This principle, intersphincteric tract is like an abscess in a closed space (ISTAC), needs to be addressed to achieve high cure rate in complex anal fistulas [8,9].

DRAPED – Draining all pus and ensuring continuous drainage

Abscess anywhere else in the body cannot be treated by antibiotics alone or single time aspiration of pus followed by antibiotics. It is treated by adequate drainage and derroofing at the same time. Derroofing is done to ensure continuous drainage and avoid collection during the postoperative (healing) period [9]. Only when the cavity remains empty, proper healing by secondary intention takes place. So, draining all pus and ensuring continuous drainage (DRAPED), is the basis of treating an abscess in any part of the body [9]. The sepsis in the

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<https://doi.org/10.1016/j.mehy.2019.109329>

Received 5 March 2019; Received in revised form 19 July 2019; Accepted 24 July 2019

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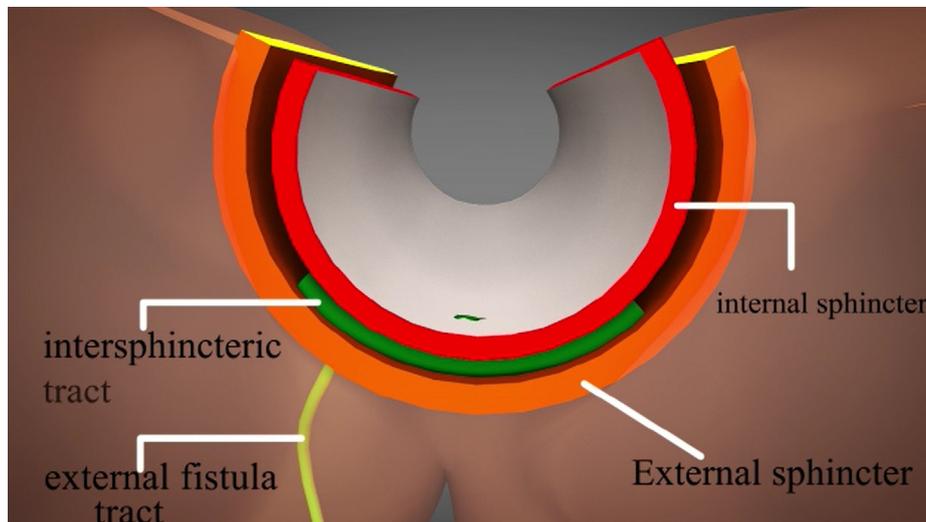


Fig. 1. Schematic diagram of a complex anal fistula showing the tract in the intersphincteric space which behaves like an abscess in a closed space.

intersphincteric space (abscess in a closed space) will be treated adequately only when DRAPED is followed.

HOPTIC – *Healing occurs progressively till it is interrupted irreversibly by a collection*

Another important point is that once the abscess is adequately drained and the wound is healing by secondary intention, any collection of pus in the wound would stop the healing process irreversibly. The reason behind this principle – healing occurs progressively till it is interrupted irreversibly by a collection (HOPTIC), is not difficult to understand. During healing phase, even a single episode of collection is perceived as a danger by the rapidly healing tissues. This leads to immediate cessation of the healing process followed by the formation of a fibrous wall. The latter is formed to prevent spread of sepsis into the blood vessels of the advancing granulation tissue. Unfortunately, this step is irreversible. Once the fibrous wall formation has been initiated, then even the removal of the causing factor (drainage of the collection) doesn't help. The fibrous wall though formed by the body, cannot be removed by the body and the patient then needs to be operated again. This phenomenon is similar to pulmonary fibrosis or liver cirrhosis where fibrosis is initiated by the body for its benefit but the whole process become irreversible and ultimately troublesome for the body itself.

Evaluation of hypothesis

Once the concepts of ISTAC (intersphincteric tract is like an abscess in a closed space), DRAPED (drain all pus and ensure continuous drainage) and HOPTIC (healing occurs progressively till it is interrupted irreversibly by a collection) are analysed together, it becomes easy to understand as why most of the newer sphincter-saving procedures innovated during the last two decades do not seem to work well in complex fistulas. These newer sphincter-saving procedures concentrate on treating/debriding the external fistula tracts and closure of the internal (primary) opening. But these procedures do not address the issue of sepsis/tract in intersphincteric space (ISTAC) or drain the intersphincteric space (DRAPED). Therefore, most of these procedures like anal fistula plug (AFP) [3], video assisted anal fistula treatment (VAAFT), over the scope clip (OTSC) closure, fibrin glue or fistula tract laser closure (FILAC) have healing rate of 25–75%. On closer analysis, the majority of fistulas in the studies utilizing these new procedures were simple and low [3,6]. Fistulotomy in such simple fistulas has a cure rate of up to 94–98% [1]. The success rate of these new procedures

in a cohort of only complex anal fistulas has not been studied but is expected to be much lower.

Ligation of intersphincteric fistula tract (LIFT) procedure, by ligating the intersphincteric tract, takes care of the ISTAC principle but fails to follow the DRAPED principle as the intersphincteric space is not deroofed to ensure continuous drainage in the postoperative period [9]. Therefore, LIFT has moderate success rate in complex fistulas.

The only procedures which take care of both these principles are – fistulectomy with primary repair (FPR) and transanal opening of intersphincteric space (TROPIS) [7,8]. FPR by excising the complete fistula tracts including intersphincteric tracts, works in a manner similar to excision of the abscess. Therefore, though technically demanding and entailing extensive dissection, FPR works well in complex fistulas (healing rate 88–95%) [2]. TROPIS is a relatively new procedure in which the intersphincteric space is opened (deroofed) in the rectum through the transanal route [7,8,10]. The external tracts are curetted and cleaned. As TROPIS procedure takes care of both ISTAC and DRAPED principles, its success rate is also 90–95% in complex fistulas [7,8,10].

Fistulotomy, by laying open all the fistula tracts including the intersphincteric component and keeping them open in the postoperative period, also takes care of both ISTAC and DRAPED principles [1]. Therefore fistulotomy has a very high success rate (up to 95–98%), though it can understandably be done in only low fistulas [1].

Conclusions

The three cardinal principles-ISTAC, DRAPED and HOPTIC – are logical and derived from the basics principles of the wound healing. These principles fill the void in the understanding of complex anal fistula but were completely ignored till date. The procedures which take care of these three principles are expected to have high success rate in complex anal fistula and vice-versa.

Source of support

Nil.

Grant support for research

Nil.

Specific author contributions

Pankaj Garg is the sole author and contributed entirely to the manuscript.

Presentation

The abstract of this paper was presented at American Society of Colon Rectum Surgeons (ASCRS) annual meeting, Cleveland, OH, USA on 3 June 2019.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

Nil.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.mehy.2019.109329>.

doi.org/10.1016/j.mehy.2019.109329.

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