A 30 YEAR EXPERIENCE IN THE MANAGEMENT OF ANAL FISTULA

Doureid Oueidat 1, 2, Tarek Bou Assi 3, Lara Youssef 4, Alain Rizkallah 1, Raymond Zerbe 1, Francesco Cappello 5, Giovanni Tomasello 3, Angelo Leone 5, Abdo Jurjus 1

1 Department of Anatomy, Cell Biology and Physiology, Faculty of Medicine, American University of Beirut, Lebanon
2 Department of Surgery, Al-Zahra Hospital, Beirut, Lebanon
3 Department of Laboratory Medicine, Psychiatric Hospital of the Cross, Jal edib, Lebanon
4 Faculty of Nursing and Health Sciences, Notre Dame University, Louize Zouk Mosbeh, Lebanon
5 Department of Experimental Biomedicine and Clinical Neuroscience, University of Palermo, Palermo, Italy

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ABSTRACT

Anal fistula has been recognized for centuries, and yet, its treatment remains a challenge for surgeons till today. In this study, a 30 year experience of treating anal fistula is being reported and discussed in light of the various recognized management methods. A total of 320 patients were treated by fistulotomy, fistulectomy, fistula plugging or seton technique. Data showed that fistula plugging carried the highest failure rate (89%) seconded by fistulectomy (37%), seton procedure (24.5%) and fistulotomy (15.6%). High transsphincteric fistulas were more likely to predict failure compared to low transsphincteric, intersphincteric and subcutaneous fistulas (37.5% versus 9.5%, 7.3% and 0%, respectively). In conclusion, the scales seem to support fistulotomy. However, no standardized algorithm exists to guide the care of patients and the choice of operation is based on patient-related factors, the patient’s surgical history, and the surgeon’s experience and familiarity with the various techniques for treating anal fistula.

1. Introduction

Anal fistula is one of the most benign anorectal disorders treated by the surgeons. It is mostly an age old problem involving the anorectal region. It has proven to be notorious for its chronicity, recurrences and frequent acute exacerbations. References to fistula in the anorectal region date to antiquity. Hippocrates (460 B.C) described the use of seton to cure fistula in anorectal region. In 1376, the English surgeon John Ardene wrote treatises of fistula in anorectal region, whereby he described fistulotomy and seton use (1). Of all patients who present with an initial perianal abscess, up to 65% will develop a chronic or recurrent anal fistula (2,3). The true prevalence of fistula-in-ano is unknown. The incidence of a fistula-in-ano developing from anal abscess ranges from 26 to 38% (4). One study showed that the prevalence of fistula-in-ano is 8.6 cases per 100 000 population. The prevalence in men is 12.3 and in women 5.6 cases per 100 000 population. The male to female ratio is 2.1 and the mean age is 38.3 years (5, 6). Surgery is the basic gold standard treatment of anal fistulas aiming mainly at healing the fistulous tracts, eradication of infection, and preservation of anal sphincter muscle. Various surgical treatments have been tried to cure fistula-in-ano including fistulectomy, fistulotomy, fistula plugging, and seton procedure. The aim of this article is to review our experience with patients treated for anal fistula secondary to cryptoglandular disease and to determine the factors that could influence postoperative outcome.

2. Methods

During the period between March 1986 and February 2015, three hundred and twenty patients underwent surgical intervention for anal fistula (214 males and 106 females; median age: 42 years; range: 20-71 year and follow-up: 6-18 months). Exclusion criteria were non-cryptoglandular fistula (i.e. fistula due to inflammatory bowel disease, HIV, malignant...
Fistulotomy was performed in 180 patients and in 28 patients (15.6%), the operative intervention failed (Table 2). Of these 28 patients, disease persistence was apparent in 15 patients within one month of the intervention and in 13 patients within one to six months. Postoperative recurrence was noted mainly following anal plugging (87% of patients) while fistulotomy, fistulectomy and seton procedure had similar recurrence rate. However, fistulectomy had the highest postoperative incontinence rate (28%), followed by seton procedure (15%), fistulotomy (8.5%) and finally anal plugging (2%) (Table 2). From the 320 patients, 41 had horseshoe fistulas and underwent either fistulotomy (n=15), anal plugging (n=16) or seton procedure (n=10). These patients had the highest percentage of operative failure (44.5%) (Table 3).

After combining the postoperative recurrence and incontinence rates, it was evident that anal fistula plugging carried the highest failure rate (89%) compared with fistulotomy (15.6%), fistulectomy (37%) and seton procedure (24.5%). It was also noted that the presence of multiple external anal openings increased the risk of recurrence as depicted in Table 3. Moreover, we found that older patients had a higher postoperative complication rate (18%) compared with the younger group (12.5%). Finally, high transphincteric fistulas were more likely to predict failure compared with low transphincteric, intersphincteric and subcutaneous fistulas (37.5% versus 9.5%, 7.3% and 0%, respectively) (Table 3).

Table 2 - Operative Intervention and Overall Outcome

<table>
<thead>
<tr>
<th>Method of Treatment</th>
<th>Number of patients</th>
<th>Healing duration in weeks</th>
<th>Recurrence rate %</th>
<th>Incontinence rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fistulotomy</td>
<td>180</td>
<td>3-5</td>
<td>7.1</td>
<td>8.5</td>
</tr>
<tr>
<td>Fistulectomy</td>
<td>50</td>
<td>5-15</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>Anal Fistula Plugging</td>
<td>35</td>
<td>2-4</td>
<td>87</td>
<td>2</td>
</tr>
<tr>
<td>Seton Procedure (Rubber)</td>
<td>55</td>
<td>6-8</td>
<td>9.5</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 3 - Percentage of Operative Failure in Patients with anal fistula

<table>
<thead>
<tr>
<th>Age</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 42 years</td>
<td>12.5%</td>
</tr>
<tr>
<td>&gt;42 years</td>
<td>18%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>14.5%</td>
</tr>
<tr>
<td>Female</td>
<td>17.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fistula Type</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subcutaneous</td>
<td>0%</td>
</tr>
<tr>
<td>Intersphincteric</td>
<td>7.3%</td>
</tr>
<tr>
<td>Low Transphincteric</td>
<td>9.5%</td>
</tr>
<tr>
<td>High transphincteric</td>
<td>37.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Fistulous tracts</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>14%</td>
</tr>
<tr>
<td>Multiple</td>
<td>19.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedure</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fistulotomy</td>
<td>15.6%</td>
</tr>
<tr>
<td>Fistulectomy</td>
<td>37%</td>
</tr>
<tr>
<td>Anal Plug</td>
<td>89%</td>
</tr>
<tr>
<td>Seton Procedure</td>
<td>24.5%</td>
</tr>
</tbody>
</table>
4. Discussion

Management of anal fistula remains a challenge for surgeons (coloproctologists) because of the anatomical location of the disease and the potential risks of postoperative recurrence and incontinence complications. Although the primary objective of operative intervention is to cure the fistula, equally important is the morbidity associated with each procedure.

Fistulotomy remains one of the most commonly performed operations for anal fistula with a reported success rate ranging from 87% to 94% (7), which is similar to our findings (84.4%). As mentioned before, fistulotomy entails the division to various degrees of anal sphincter muscle, which may affect the patient’s incontinence and adversely affecting the patient’s quality of life.

In our series, postoperative incontinence has been noted between 8.5% and 28% of patients who underwent fistulotomy and fistulectomy. This conforms to incontinence rates reported in literature that range between 6 and 40 percent (6, 8-10). So, this finding has prompted surgeons to identify the subgroups of patients who are at an increased risk of developing post fistulotomy and post fistulectomy incontinence and to offer such patients sphincter preserving techniques. Patients who are predisposed to incontinence include patients with baseline incontinence, those with a history of anal operations, women with anterior based fistulas, and patients with high tracts or horseshoe fistulas involving a significant amount of sphincter muscle (11, 12).

Although, early results with anal fistula plugging appeared promising, several large studies showed a low success rate 14% (13) which is consistent with our results. However, more recent studies reported better success rates from 20% to 34% (14, 15).

During the study period, all patients were treated with fistulotomy, fistulectomy and 2 other sphincter preserving techniques (the anal fistula plugging and seton procedure). However, the highest operative success was achieved with fistulotomy and seton procedure. The anal fistula plug was associated with the lowest success rate (13%). Postoperative fecal incontinence developed in 8.5%, 28%, 2% and 15%, respectively, in patients who did not have prior baseline incontinence (Table 2). Patients older than 42 years and having high transsphincteric fistulas had higher rates of fecal incontinence as depicted in Table 3. These findings can be explained physiologically as loss of muscle tone due to aging or loss of muscle tissue due to surgical intervention, both entities would affect the continence level (16).

On assessment of the risk factors for recurrence, incontinence and delayed wound healing in our series, it was found that the presence of multiple external openings was associated with increasing risk of recurrence, and this conforms to what was reported in St. Mark’s Hospital series (17). Our results support the commonly held idea that fistula recurrences increase with the complexity of the fistula (18). The high postoperative recurrence rate seen in horseshoe fistulas suggests that uncertainty about the relationship of the fistula with anatomic structures of the anal region can preclude effective treatment. A thorough knowledge of the anatomy of the region is strongly recommended. Actually, the appropriate type of surgery is dictated by the course of the fistula tract. Significant potential morbidity, such as incontinence and recurrence, contributes to the surgeon’s reluctance to perform aggressive and invasive procedures resulting in the non-eradication of infection and hence recurrence (19). On reviewing literature, it was noted that improper identification of internal opening was reported to be the most common cause of recurrence.

In our study, there was no significant difference between fistulotomy (7.1%) and seton (9.5%) regarding recurrence rate; however, previous reports showed that seton has a higher recurrence rate (0-25%) compared to fistulotomy (1-9.7%) (20). This difference could be attributed to the smaller number of patients treated by seton technique, higher selection of cases, and the shorter follow-up period in our study.

The other major concern in fistula surgery is the possibility of various degrees of incontinence. In this series, complaints about disorders of continence have been reported in 53.5% of patients without a major degree of postoperative incontinence. This result is within the normal range of incontinence, up to 56%, as reported in different series (21-23).

Data in this study depicted that there was a significant correlation between the development of anal incontinence and old age, female sex, and the presence of multiple external openings. In line with the literature, the association of incontinence with the complexity of fistula is statistically significant (18, 24).

Furthermore, our results support the commonly held belief that cutting of the tissue encircled by a fistulous tract carries a risk of incontinence that is proportional to the amount of muscle divided. Clearly, one should be more conservative in women and particularly in those with anterior-based fistula, as the anal canal tends to be shorter. In addition, there is the added problem of occult sphincteric injury secondary to child birth (30% after regular delivery and 80% after forceps assisted delivery) (25).

This study has several limitations, in particular, the patients were not randomized to the various operative interventions and the choice of operation was driven by the surgeon’s judgment, based on the patient’s surgical history, fistula anatomy, and baseline continence level. Most of the patients, perceived to be at a higher risk of incontinence, underwent fistulotomy and a sphincter preserving operation. On the other hand, the anal fistula plugging and seton (rubber) technique were used in a smaller number of patients. Therefore, the results of our study need to be interpreted within the context of these limitations.

It is also important to note that other procedures are implicated in the treatment of anal fistula such as endorectal advancement flap, anocutaneous flap (25, 26), video-assisted anal fistula treatment (VAAFT) (27), which is a minimally invasive and sphincter saving procedure for treating complex fistulas. The main feature of the VAAFT technique is the ability to view the fistula from the inside of the tract so that it can be eradicated under direct vision using fistuloscope. In our institutions this equipment is not available and consequently we are not acquainted with this procedure, not to mention that the cases of complicated fistulas are limited in Lebanon. Furthermore, recent reports from Chulalongkorn University described a novel technique called Ligation of the intersphincteric fistula tract (LIFT) (28, 29). It is based on detection of the internal opening by injection of H2O. A curvilinear incision at the intersphincteric tract is made, followed by identification of the intersphincteric tract and its ligation close to the internal opening and then removal of the intersphincteric tract. Finally, there all granulation tissue in the rest of the fistulous tract will be removed with suturing of the defect at the external sphincter muscle.

Muhammed Sh et al. reported that primary healing was achieved in 82% of 45 patients (30), while Tozer et al. reported a lesser success in such a procedure reaching 57% of the 37 patients (31). This procedure leads to preservation of anal sphincter, with minimal tissue injury and a shorter healing time (Anaraki et al.2016) (32).

On the other hand, the LIFT procedure started in our institutions since April 2012.
So far, the cases are limited and there is a need for a close follow-up to analyze the results before any reporting. Furthermore, there is another new technique, the radical emitting laser probe that showed very promising preliminary results (33, 34, 35), however, it is still too early to report on.

Moreover, adipose derived adult stem cell administration to treat complex perianal fistula proved to be safe without any incontinence risk but it seems that healing is lower than other sphincter-preserving procedure (36, 37).

5. Conclusions

The Surgical treatment of anal fistula is a balancing act aimed at eradicating the disease, preserving continence, and limiting the morbidity of the interventions. In this study, the scales seem to support fistulotomy compared with the other operations. Anal fistula plugging was associated with the highest operative failure and persistence of the disease when compared with fistulotomy, fistulectomy, and seton technique. Patients with high transphincteric fistula and those older than 42 years were at higher risk of developing postoperative incontinence. It is recommended that some understanding of the anatomy of the fistulous tract and its relation to anal sphincter, in addition to factors affecting outcome, is a must for proper planning for surgical management of anal fistula.

In brief, the management of anal fistula remains a challenging condition to the colorectal surgeons despite the best technological advances. No standardized algorithm exists to guide the care of patients with anal fistula, and the choice of operation is based on patient-related factors, the patient’s surgical history, and the surgeon’s experience and familiarity with the various new techniques for treating anal fistula.

References


