

Evaluation of One Stage Lay Open Operation with Primary Sphincter Repair versus Staged Rerouting Operation in Case of High Transsphincteric Perianal Fistula

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Introduction: Perianal fistula is a chronic anorectal infection that predominantly affects patients in their active years of life. Some cases of specific anal fistula, such as Crohn's fistula, could be treated medically; however, surgery is the only curative treatment for cryptogenic anal fistula. Operations for anal fistula can be divided into sphincter-preserving and sphincter-sacrificing techniques. The former is known to be associated with more recurrence and less incontinence, whereas the latter is associated with less recurrence and significant postoperative incontinence. Incontinence associated with sphincter-sacrificing operations is related to the amount of sphincter divided, and in high arching transsphincteric fistula, the continence mechanism may be seriously affected after fistulotomy.

Aim of work: To compare the outcome of one stage lay open operation with primary sphincter repair versus staged rerouting operation for high trans-sphincteric perianal fistula to detect their effect on recurrence and continence.

Patients and methods: 60 consecutive patients with high transsphincteric perianal fistula were enrolled into the study by prospective method, after ethical committee approval. All the patients signed an informed written consent. Fistulae were assessed clinically and by MRI when the clinical diagnosis was unclear. Preoperative continence status was assessed using the Wexner incontinence score. Preoperative incontinence did not exclude patients from the study, but its degree was reported to be compared with postoperative continence status. All operations were done by expert consultants anorectal surgeons in the Colorectal Surgery Unit, El Demerdash Hospital, Ain Shams University and Dar El Shifa Hospital in a period of 6 months starting from January 2023 till June 2023.

Results: 2 patients (6.7%) developed mild Incontinence, also 2 (6.7%) patients had recurrence among rerouting group, while in sphincterotomy with sphincteroplasty 3 patients (10%) had mild incontinence and 3 (10%) patients had recurrence.

Conclusion: Both procedures appear to be valid options in the treatment of a high transsphincteric fistula-in-ano with no preference between them, with a low failure rate and acceptable risk of incontinence. Both procedures are challenging, so they should be done by an expert specialized surgeon.

Key words: Perianal fistula, transsphincteric, rerouting, fistulotomy.

Introduction

A fistula-in-ano is an abnormal hollow tract or cavity that is lined with granulation tissue and that connects a primary opening inside the anal canal to a secondary opening in the perianal skin; secondary tracts may be multiple and can extend from the same primary opening.¹

Most fistulae are thought to arise as a result of cryptoglandular infection with resultant perirectal abscess. The abscess represents the acute inflammatory event, whereas the fistula is representative of the chronic process. Symptoms generally affect quality of life significantly, and they range from minor discomfort and drainage with resultant hygienic problems to sepsis.¹

Hippocrates, in about 430 BC, made reference to surgical therapy for fistulous disease, and he was the first person to advocate the use of a seton (from Latin seta "bristle").²

In 1376, the English surgeon John Arderne (1307-1390) wrote *Treatises of Fistula in Ano*;

Haemorrhoids, and Clysters, which described fistulotomy and seton use. Historical references indicate that Louis XIV was treated for an anal fistula in the 18th century. Salmon established a hospital in London (St. Mark's) devoted to the treatment of fistula-in-ano and other rectal conditions.²

Since this early progress, little has changed in the understanding of the disease process. In 1976, Parks et al., refined the classification system that is still in widespread use. Over the past few decades, many authors have presented new techniques and case series in an effort to minimize recurrence rates and incontinence complications, but despite more than two millennia of experience, fistula-in-ano remains a perplexing surgical disease.

In the vast majority of cases, fistula-in-ano is caused by a previous anorectal abscess. Typically, there are eight to 10 anal crypt glands at the level of the dentate line in the anal canal, arranged circumferentially. These glands penetrate the internal sphincter and end in the intersphincteric plane. They provide a path by which infecting

organisms can reach the intramuscular spaces. The cryptoglandular hypothesis states that an infection begins in the anal canal glands and progresses into the muscular wall of the anal sphincters to cause an anorectal abscess.³

Although, the course of the infection may follow other pathways giving rise to four types of fistula-in-ano.³ Intersphincteric, Transsphincteric, Suprasphincteric and Extrasphincteric.

After surgical or spontaneous drainage in the perianal skin, a granulation tissue-lined tract is occasionally left behind, causing recurrent symptoms. Multiple series have shown that formation of a fistula tract after anorectal abscess occurs in 7-40% of cases.^{4,5}

Other fistulae develop secondary to trauma (eg, rectal foreign bodies), Crohn disease, anal fissures, carcinoma, radiation therapy, actinomycoses, tuberculosis, and lymphogranuloma venereum secondary to chlamydial infection.^{6,7}

Surgery is the treatment of choice, with the goals of draining infection, eradicating the fistulous tract, and avoiding persistent or recurrent disease while preserving anal sphincter function.^{6,7}

The simplest system of classification of perianal fistulae is to divide fistulas into either low or high, depending on their relationship to the dentate line. Fistulae that originate below the dentate line are considered to be low fistulae, whereas those above the dentate line are considered to be high. Low trans-sphincteric fistulas involve the lower 3rd of the external anal sphincter mechanism and are generally treated by fistulotomy with a high success rate for cure. High trans-sphincteric fistulas, involving the upper two-thirds of the external sphincter, remain a surgical challenge because incontinence may result from the division of muscle involving more than one-third of the sphincter.⁷

There are several operation like fistulotomy, cutting seton, fibrin glue injection, fistula plug and endorectal advancement flap.⁹

Operations for anal fistula can be divided into sphincter-preserving and sphincter-sacrificing techniques. The former is known to be associated with more recurrence and less incontinence, whereas the latter is associated with less recurrence and significant postoperative incontinence.¹⁰

Incontinence associated with sphincter-sacrificing operations is related to the amount of sphincter divided, and in high arching transsphincteric and suprasphincteric fistulae, the continence mechanism may be seriously affected after fistulotomy.¹¹

Aim of the work

This study aims to compare the outcome of one

stage lay open operation with primary sphincter repair versus staged rerouting operation for high trans-sphincteric perianal fistula to detect their effect on recurrence and continence.

Patients and methods

60 consecutive patients with high transsphincteric perianal fistula were enrolled into the study by prospective method, after ethical committee approval. All the patients signed an informed written consent. Fistulae were assessed clinically and by MRI when the clinical diagnosis was unclear. Preoperative continence status was assessed using the Wexner incontinence score. Preoperative incontinence did not exclude patients from the study, but its degree was reported to be compared with postoperative continence status. All operations were done by expert consultants anorectal surgeons in the Colorectal Surgery Unit, El Demerdash Hospital, Ain Shams University and Dar El Shifa Hospital.

Inclusion criteria: Age between 18 and 60. Patients diagnosed with high transsphincteric perianal fistula secondary to crypto-glandular infection. Patient able to understand the procedure and able to sign the informed consent. Patient is fit for anaesthesia.

Exclusion criteria: Patient age below 18 or above 60. Patients known to have any previous anal operation. Patient diagnosed with perianal fistula secondary to any other pathology rather than infection as malignancy, diverticulitis, trauma, IBD, etc. Patient diagnosed with horseshoe perianal fistula. Multiparous female with multiple vaginal deliveries. Patient unfit for surgery. Patient unable to understand the procedure or sign the informed consent.

Ethical Consideration: Each patient was introduced to the trial by a member of the research group and receive an explanation of the study protocol. A specific informed consent regarding participation in the trial and explanation of the operative procedure was obtained and signed before enrolling in the study.

Preoperative preparation: All patients had routine pre-operative proper history taken to exclude any previous anal operations and to confirm the continence status using wexner score. Proper clinical examination of the anal region to detect the external opening that is felt as dimpling of the skin with or without discharge, although there may be no external opening at all.

Digital rectal examination to feel the high trans-sphincteric tract as a cord like structure

The internal opening is felt as a dimpling or as a papilla at the level of anal valves.

Laboratory investigations including complete blood

count, liver and kidney function, fasting blood sugar. Diabetic patients were asked to continue their normal regimen.

No colonic preparation is required apart from free fluids intake the day before surgery. Also, suppositories may be used.

Operative technique

Anesthesia: either spinal or general according to fitness of the patient. After anesthesia, patient is put in lithotomy position. Prepping and drapping were done and another anal examination was done under anesthesia for road mapping of the tract, internal and external openings.

In staged rerouting operation

All operations were done in the lithotomy position. The site of the operation was prepared and draped. After a full examination of ano-rectum, The first stage started by coring out the fistulous track. Dissection stopped at the point where the track traversed the external sphincter, when a circumanal incision was made at the anal verge, centered on the point where the fistulous track pierced the external sphincter. The intersphincteric space was entered and dissected to the depth where the fistulous track can be felt. The track was then dissected from the external sphincter by simple muscle splitting, and it was pulled to the intersphincteric space. The opening in the external sphincter was obliterated by few interrupted stitches using absorbable suture material. A seton was inserted in the transposed intersphincteric track.

The second stage was performed after complete healing of the first-stage wound. The intersphincteric fistula was probed and laid open. The track was curetted and a small cut back was done to ensure proper drainage and sound healing.

In Fistulotomy with primary sphincter repair

After full examination of ano-rectum Preliminary fistulectomy of the external tract up to the lateral edge of the external sphincter was performed. The external part of the mobilized tract was then excised while the probe was kept in the remaining tract. This provides further guidance in laying open of the remaining part of the tract, including the sphincter overlying it. The remaining internal part of the fistula tract is then laid open with diathermy cutting. The tract is curetted thoroughly and the posterior tract is excised. The muscle is repaired end to end using PDS 2/0 interrupted sutures with a space of around 3–5mm between the sutures. Finally, the mucosa is repaired using Vicryl 2/0 interrupted sutures to re-create the mucosa and the anoderm. This is

followed by soft gauze dressing and loose packing.

Postoperative care

Hot sitz baths were advised one to three times daily. Laxatives were prescribed for 3 weeks. No specific protocol for postoperative analgesia was used. Postoperative antibiotics were not used routinely. The patients were discharged the second postoperative day after the wounds were inspected and dressed. Patients were taught about home wound care, and their wounds were evaluated twice weekly for 1 week, weekly for 1 month, and monthly until complete wound healing. If there was any doubt regarding unsound healing, or local abscess formation, MRI was ordered, and the patients were examined under anesthesia for proper evaluation. The same policy of postoperative care was followed after every stage of surgery.

Recurrence is identified by persistence of any tract detected by presence of external opening or any anal discharge. MRI is needed in some cases to confirm the diagnosis of the recurrence.

Results

The previous table shows that there was no statistically significant difference found between the two studied groups regarding age, sex distribution and percentage of patients with diabetes mellitus with p-value = 0.242, 0.390 and 1.000; respectively.

The previous table shows that there was no statistically significant difference found between the two studied groups regarding percentage of wound infection with p-value = 0.301.

The previous table shows that there was no statistically significant difference found between the two studied groups regarding percentage of wound healing with p-value = 0.688.

The previous table shows that there was no statistically significant difference found between the two studied groups regarding percentage of recurrence with p-value = 0.640.

The previous table shows that there was no statistically significant difference found between the two studied groups regarding percentage of incontinence with p-value = 0.640.

The previous table shows that there was statistically significant increase in the percentage of patients with wound infection, delayed wound healing, patients with recurrence and with mild incontinence in diabetic patients than non diabetic patients with p-value = 0.006, <0.001, <0.001 and <0.001; respectively.

Table 1: Wexner score

Type of incontinence	Frequency				
	Never	Rarely	Sometimes	Usually	Always
Solid	0	1	2	3	4
Liquid	0	1	2	3	4
Gas	0	1	2	3	4
Wears pad	0	1	2	3	4
Lifestyle alteration	0	1	2	3	4

Never, 0; rarely, <1/month; sometimes, <1/week, > 1/month; usually, <1/day, > 1/week; always, > 1/day.

0, perfect; 20, complete incontinence.

Table 2: Demographic data and type of procedure among the studied patients

		Total No. = 60
Age	Mean±SD	36.78 ± 9.54
	Range	19 - 55
Sex	Female	17 (28.3%)
	Male	43 (71.7%)
Procedure	Rerouting	30 (50%)
	Sphincterotomy with primary sphincter repair	30 (50%)

Table 3: Percentage and distribution of complications among the studied patients

		Total no.=60
Infection	No	56 (93.3%)
	Yes	4 (6.7%)
Healing	Healed	53 (88.3%)
	Delayed	7 (11.7%)
Recurrence	No	55 (91.7%)
	Yes	5 (8.3%)
Incontinence	No	55 (91.7%)
	Mild	5 (8.3%)

Table 4: Comparison between rerouting procedure and sphincterotomy with primary sphincter repair procedure regarding demographic data and characteristics

		Procedure		Test-value	P-value	Sig.
		Rerouting	Sphincterotomy with primary sphincter repair			
		No.=30	No.=30			
Age	Mean±SD	35.33 ± 9.77	38.23 ± 9.24	-1.181•	0.242	NS
	Range	19 – 55	19 – 54			
Sex	Female	10 (33.3%)	7 (23.3%)	0.739*	0.390	NS
	Male	20 (66.7%)	23 (76.7%)			
DM	No	27 (90%)	27 (90%)	0.000*	1.000	NS
	Yes	3 (10%)	3 (10%)			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant.

*: Chi-square test; •: Independent t-test.

Table 5: Comparison between rerouting procedure and sphincterotomy with primary sphincter repair procedure regarding percentage of wound infection

Infection	Procedure		Test-value	P-value	Sig.
	Rerouting	Sphincterotomy with primary sphincter repair			
	No.=30	No.=30			
No	29 (96.7%)	27 (90%)	1.071*	0.301	NS
Yes	1 (3.3%)	3 (10%)			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant.

*: Chi-square test.

Table 6: Comparison between rerouting procedure and sphincterotomy with primary sphincter repair procedure regarding percentage of wound healing

Healing	Procedure		Test-value	P-value	Sig.
	Rerouting	Sphincterotomy with primary sphincter repair			
	No.=30	No.=30			
Healed	27 (90%)	26 (86.7%)	0.162*	0.688	NS
Delayed	3 (10%)	4 (13.3%)			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant.

*: Chi-square test.

Table 7: Comparison between rerouting procedure and sphincterotomy with primary sphincter repair procedure regarding percentage of recurrence

Recurrence	Procedure		Test-value	P-value	Sig.
	Rerouting	Sphincterotomy with primary sphincter repair			
	No.=30	No.=30			
No	28 (93.3%)	27 (90%)	0.218*	0.640	NS
Yes	2 (6.7%)	3 (10%)			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant.

*: Chi-square test.

Table 8: Comparison between rerouting procedure and sphincterotomy with primary sphincter repair procedure regarding percentage of incontinence

Incontinence	Procedure		Test-value	P-value	Sig.
	Rerouting	Sphincterotomy with primary sphincter repair			
	No.=30	No.=30			
No	28 (93.3%)	27 (90%)	0.218*	0.640	NS
Mild	2 (6.7%)	3 (10%)			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant.

*: Chi-square test.

Table 9: Shows Preoperative and postoperative Wexner score in patients who developed postoperative incontinence

	Rerouting procedure		Sphinctrotomy and primary sphincter repair	
	Pre-operative	Post-operative	Pre-operative	Post-operative
Patient 1	2	4	3	5
Patient 2	2	4	2	4
Patient 3			3	5

The WEXNER SCORE
A Frequency Assessment Tool

Type of Incontinence	Never	Rarely	Sometimes	Usually	Always
Solid	0	1	2	3	4
Liquid	0	1	2	3	4
Gas	0	1	2	3	4
Wear pad	0	1	2	3	4
Lifestyle altered	0	1	2	3	4

Never - 0
 Rarely - Less than once a month
 Sometimes - Less than once a week or once a month
 Usually - Once a day or once a week
 Always - Once a day or more

SCORE:
 0 PERFECT
 20 COMPLETE INCONTINENCE

A score of zero=perfect continence.
 Zero to 5 = mild incontinence.
 5 to 16 = moderate incontinence.
 16 to 20 =Complete incontinence.

Fig 1: Wexner score, a frequency assessment tool.

Table 10: Comparison between diabetes and non diabetic groups regarding percentage of complications

		No DM	DM	Test value	P-value	Sig.
		No. = 54	No. = 6			
Infection	No	52 (96.3%)	4 (66.7%)	7.619	0.006	HS
	Yes	2 (3.7%)	2 (33.3%)			
Healing	Healed	51 (94.4%)	2 (33.3%)	19.569	0.000	HS
	Delayed	3 (5.6%)	4 (66.7%)			
Recurrence	No	52 (96.3%)	3 (50.0%)	15.152	0.000	HS
	Yes	2 (3.7%)	3 (50.0%)			
Incontinence	No	52 (96.3%)	3 (50.0%)	15.152	0.000	HS
	Mild	2 (3.7%)	3 (50.0%)			

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant.

*: Chi-square test.

Discussion

Anal fistula is a common disease that causes pain, discomfort, anal discharge, and recurrent abscess. In addition, more serious complications, such as necrotizing fasciitis, have been occasionally reported in patients with fistula.¹²

Lay open of the fistulous track is the classic operation for the treatment of anal fistula that is associated with minimal recurrence.¹³ The low recurrence rate after fistulotomy is probably because this procedure eliminates the internal opening, a significant factor in fistula recurrence.¹⁴

The internal opening is not eradicated in any of the sphincter-saving procedures for anal fistula; it is merely blocked if fibrin glue or fistula plug is used, covered in mucosal advancement flap operation, stitched in VAFT and LIFT techniques, or burnt in operations using LASER technology. The non-eradicated internal fistula opening can reopen any time it becomes infected, an event that cannot be confidently avoided in the inherently contaminated medium of the anal canal. It is thus not astonishing that recurrence rate is higher after sphincter-saving fistula surgery as compared with fistulotomy.¹⁵

Despite the low recurrence rate after fistulotomy, a major drawback of this operation is the inevitable division of part of the anal sphincters, which can lead to postoperative fecal incontinence in 10–52% of patients.¹⁰

It thus seems that recurrence and incontinence are two faces of the same coin that accompany surgery for anal fistula, the more that is done to avoid one, the more it is likely to get the other. Incontinence is, however, minimal if only a small part of the sphincter is divided (Cavanaugh et al., 2002). Postoperative fecal incontinence is a major cause of deterioration of the quality of life after anal fistula surgery.¹⁶

The degree of postoperative deterioration in the quality of life is again directly proportional to the amount of sphincter divided and the severity of incontinence.¹⁷ Thus, fistulotomy can be done safely in low fistula as it is associated with minimal sphincter division, minor fecal incontinence in a small percentage of patients, and minimal or no deterioration in the quality of life.¹⁸

All patients in the present study had high transsphincteric fistulae. Those types of patients are expected to develop major incontinence if treated by fistulotomy, or significant recurrence if treated by sphincter-saving procedure. This was not the case when, in the present study, we used the two techniques.

In our study, 60 patients with high transsphincteric perianal fistula were prospectively studied. Both

genders were included in the study in which 17 female patients (28.3%) and 43 male patients (71.7%) were present.

Comorbidities were recorded after full history taking from all patients and were recorded as follows: 54 patients known to have no history of medical importance with percentage of 90% and 6 patients with percentage of 10% were diabetic.

Patients were given a follow up schedule upon discharge from the hospital as the following in the form of twice weekly for 1 week, weekly for 1 month, and monthly until complete wound healing for 6 months.

Among 60 patients and during their follow up, we didn't find perianal abscess, stitch sinus or wound creeping among our patients as postoperative complications. Also we didn't monitor Track gangrene "of the mobilized rerouted track" as we advise not to thin out the track extensively to avoid this complication. Instead, we can increase the opening of the external sphincter fibers to accommodate any track, no matter how thick it is. And we can obliterate the external sphincter with absorbable stitches.

If Track gangrene developed, it is treated by simple debridement. that do not hinder proceeding to the second stage.

Incontinence is considered the most significant complication noted in the follow up of the patients in the scheduled intervals.

Continence was assessed and reported after complete healing of the first-stage and second-stage wounds, and every 3 months regarding rerouting procedure, and after complete healing of wound regarding fistulotomy with primary sphincter repair procedure

There was no significant difference in relation to age, sex, parity, BMI or the location of the fistula, whether anterior or posterior, for the development of incontinence

In our study we found that Only 2 patients that underwent staged rerouting procedure had mild incontinence (6.7%), 1 patient was incontinent to gases only (3.3%), 1 patient was complaining from staining of the underwear only one time per week (3.3%), 28 patients (93.3%) were completely continent to both stool and flatus. And that supported Abou-Zeid, et al., results on 54 patients, 45 male and 9 female were operated rerouting on from Jan 2016 to May 2018. Among those cases, Four (7.4%) patients experienced minor postoperative incontinence in the form of gas incontinence in three patients and staining of the underwear in one patient¹⁹

In a study carried out by the General Surgery Department, Mansoura University Hospitals on 97 patients underwent rerouting procedure to high transsphincteric perianal fistula fecal incontinence had happened to 7 patients (14.5%).²⁰

In sphincterotomy with primary sphincter repair Only 3 patients had mild incontinence (10%), 2 patient was incontinent to gases only(6.7%), 1 patient was complaining from staining of the underwear only one time per week (3.3%), 27 patients (90%) were completely continent to both stool and flatus. In reference to another study that matched our results, 40 patients, 25 male and 15 female were operated on from 2017 to 2018. Among those cases, Four (10%) patients experienced minor postoperative incontinence in the form of gas incontinence in three patients and staining of the underwear in one patient.²¹

In a larger study on fistulotomy and sphincter repair by Litta et al., 2019,²² which included 203 patients, 26 (13%) patients developed postoperative incontinence.

In contrast to our results Steffen et al., 2018²³ recorded incontinence in 23% of patients after the same procedure. while (Farag et al., 2019) reported that only 2.28% of their patients developed fecal incontinence, despite the large number of patients included.

Recurrence was defined as persistent purulent discharge either from an external opening or from the anal canal. Any suspected fistula recurrence or persistent unexplained anal pain was assessed by MRI and examination under anesthesia for accurate evaluation. In our study, 27 (90 %) of our patients who underwent rerouting developed complete wound healing within 8 weeks, 3 patients (10%) developed delayed healing after 8 weeks. And only 2 patients developed recurrence after finishing all stages of the operation (6.7%). Also Abou-Zeid et al., study on 54 patients showed only 3 patients (5.5%) developed recurrence after complete healing of wound after the two stages.¹⁹

This percentage was higher in M. Abdelnaby, et al., as on his follow-up, 4 (8.3%) patients experienced recurrence of anal fistula among 48 patients.²⁰

Among 30 patients underwent lay open with primary sphincter repair we found that 4 patients (13.3%) had delayed healing after 8 weeks. And only 3 patients developed recurrence (10%) ; these results match those reported by (Hirshburger et al.,) and (Farag et al.,), with 10% and 9.1% of patients developing recurrence after fistulotomy and primary repair of the sphincter, respectively. Also matches (Ebied et al.,) as 87.5% of patients developed complete wound healing within 8 weeks and 10%

of patients developed recurrence after the same operation.^{21,24,25}

Despite all these results, a study was performed at the GIT surgical unit of the General Surgery Department at Zagazig University Hospital in the period from July 2018 to December 2019 showed different results as among 24 patients with high transsphincteric perianal fistula underwent fistulotomy and immediate sphincteric reconstruction 7 patients (29.2%) gave a history of a recurrent anal fistula or recurrent abscess, 2 patients (8.3%) had delayed wound healing, taking longer than 6 weeks. Four patients (16.6%) had failure of complete wound healing for 6 months, which was considered persistent anal fistula.²⁶

If the fistulous track is inadvertently injured while coring it out in the first stage of rerouting, the likely postoperative scenario is that infection extends from the injured track to the hole in the external sphincter through which the track was cored out, and a transsphincteric fistula, simulating the original fistula, will probably be seen in the second stage. This same scenario is also expected if we combined rerouting with lay open of the fistula track in one stage. The minor fecal leak that can be associated with division of the lower part of the internal sphincter can cause infection to extend through the hole in the external sphincter to cause recurrence. For this reason, we performed the operation in two stages.

Our results showed that only 3.3% of patients underwent staged rerouting procedure had infection while 10% of patients underwent lay open with sphincter repair developed wound infection that matches results of a study performed in colorectal unit, Ain Shams University and red crescent specialized hospital that showed 2 patients (10%) of their patient developed infection after sphincterotomy and primary sphincter reconstruction.

In contrast to our results, The major complication was infection after Fistulotomy with Immediate Sphincteric Reconstruction 4 patients among 24 patient (16.7%).²⁶

In our study, we found that there is significant increase in the percentage of patients with wound infection, delayed wound healing, patients with recurrence and with mild incontinence in diabetic patients than non-diabetic patients with percentage 33.3%, 66.7%, 50%, 50% , respectively. As among 4 patients developed wound infection, 2 patients were diabetic. seven patients had delayed wound healing, four of them were diabetic. According to patients developed recurrence and mild fecal incontinence, 3 patients were diabetic among 5 patients had each complication.

Also Orban YA., et al. found that the risk of complications specially wound infection was relatively higher in diabetes mellitus; as 5 patients were diabetic in his study, 2 of whom developed postoperative wound infection.²⁶

Conclusion

There is no preference between Fistulotomy with primary sphincter reconstruction and staged rerouting procedures, both appear to be valid options in the treatment of a high trans sphincteric fistula-in-ano, with a low failure rate and acceptable risk of incontinenc.

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