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Loose Thick Seton Suture Stimulates Rapid Healing and Lower Recurrence Rate in the Treatment of High Type Fistula in Ano

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Abstract

BACKGROUND: Fistula in ano is a chronic problem for the patients. It causes distressing because of foul odor and soiling with recurrent infection and discharge. Recurrence and anal sphincter injury were the most critical complications following surgery. Loose, thick seton placement was the most promising surgical operation.

AIM: To reduce the time of seton placement, therefore, decreasing the suffering of patients from soiling and multiple dressing.

PATIENTS AND METHODS: A retrospective study, one hundred patients with high type fistula in ano treated surgically in Al-Sader Medical city and Al-Najaf daily private clinic, Najaf city, Iraq, from February 2018 to March 2019. Fistulography and magnetic resonance imaging have taken from all patients. After that, fistulectomy with loose, thick seton suture placed for 3 months. Patients with the persistence of high fistula tract underwent a second surgery and third operation until complete healing.

RESULTS: One hundred patients with high type fistula in ano with male 96 (96%) and female patients were 4 (4%). The rate of complete healing among male patients after the first operation was 90 (93%), while female patients showed a 4 (100%) rate of complete healing after the first operation. Three of the remaining male patients with persistently high fistula tract showed complete healing after the second operation, whereas 3 (3%) the rate of complete healing was 100% after the third operation.

CONCLUSION: A loose, thick seton placed in high type fistula tract for 3 months provides excellent protection to the external anal sphincter with less recurrence rate and rapid healing.

Introduction

Anal fistula is a track with an internal opening of the anal lining of the external opening in the perianal skin [1]. Fistula in ano is a chronic clinical problem. It had described by ancient medicine. It has been described in many old papers and books 2000 years before. Hippocrates (430 BCE) was the first person who represents the surgical treatment of anal fistula using seton [2]. Surgery is the definitive treatment. However, recurrence is the main problem [3]. The main challenges in treatment are preserving the function of the anal sphincter and heterogeneity of types [4], [5]. The causes of an anal fistula are either idiopathic, iatrogenic, or secondary to another disease such as inflammatory bowel disease [6]. An idiopathic anal fistula is the most common type and occurs in healthy subjects [7]. The crypto glandular the theory is the most acceptable for the generation of anal fistula. It is postulated as the initiating event in the development of a fistula is crypto glandular infection with subsequent suppuration [8]. The anal crypt glands situated at the level of dentate line and arranged circumferentially. They penetrate the internal sphincter into the intersphincteric plane. They provide the pathway for the infecting microorganism to penetrate the intramuscular area [9]. Spontaneous drainage of the abscess into the perianal skin may develop with subsequent granulation tissue lining the tract leading to recurrence of symptoms [10]. There are many classifications of fistula in ano, the most reliable one developed by the parks and colleagues which depend on the anatomical site of the fistula [11]:

- Intersphincteric
- Transsphincteric
- Suprasphincteric
- Extrasphincteric.

No medical treatment can eradicate the problem, but long-term antibiotic prophylaxis with infliximab used for the treatment of recurrent fistula in patients with Crohn's disease [12]. Therefore, surgery remains the first choice for the treatment of fistula in ano. The aims of surgical treatment are first: Draining the infection and suppuration, second: The eradication of the fistulous tract, and third: Preserving anal sphincter function [13]. Patients with Crohn's disease should be treated well before any surgical intervention [14]. The

uncomplicated abscess must drain. Perianal ulcer increases the risk of fistula formation by two folds before the age of 40 years [15]. Fistulectomy with seton placement is the primary step in surgical intervention. Seton placement can stage into single- and two-staged seton placement. Unique staged seton placement called cutting seton placement as the seton tightened with time leading to fibrosis [16]. The success rate is good with this type (about 82–100%), but the development of incontinence can exceed 30%. Two-staged seton placement, which also called loose seton placement, has a lower success rate of about 60–78% but with a lower risk of incontinence [17]. Plugs with fibrin glue and adhesives also have been used, but clinical trials showed that these approaches are not superior to seton placement for a better success rate [18]. In our previous published work, we use thick loose seton placement for about 6 months or even more. The approach was waiting until the sutures fall by itself. On the other hand, patients were complaining about soiling, multiple dressing, and bad hygiene. Therefore, this study aims to reduce the time of seton placement for up to 3 months to reduce the patient's complaint from seton placement.

Materials and Methods

The study started in February 2018 and ended in March 2019. One hundred patients selected from the private Al-Najaf daily clinic and consultant clinic in Al-Sader Medical city, Najaf city, Iraq, as a high type fistula in ano. Whether presented either as recurrence or 1st-time presentation. The diagnosis made using a computerized tomography scan (CT scan), fistulography, or magnetic resonance imaging. Prospective collected data from all the patients and were analyzed retrospectively. Written consent takes from patients before operation. All patients were informed about doing fistulectomy and thick silk seton suture placement for 3 months by excising the extrasphincteric part and putting the seton suture to the intersphincteric part. Then, the second stage of operation includes the excision of the changing low type tract in which the silk seton placed. We decrease the time of seton placement in this study for 3 months to reduce the annoying symptoms of the patients. Therefore, the patient admitted to the operation theater after obtaining written consent. Most of the patients anesthetized by spinal anesthesia. In the operation theater, the patient assumed a lithotomy position. After that, the injection of a solution, which is a mixture of methylene blue dye and hydrogen peroxide into the external opening of the fistula, was done to find the internal opening. The exit of color dye or bubbles achieved to localize of inner opening from it after using intraoperative proctoscopy examination. Then, a metal probe introduced with four- folds, number 2 silk seton suture. The seton placement was limited to the remnant inter-sphincteric part and tying it loose in its place. The past steps in the theater were hemostasis and dressing. After discharge of patients, follow-up was done every 10 days with a prescription of suitable antibiotics and analgesia with local wash by normal saline and iodine soap twice daily. In six male patients, during the second stage operation, we found the fistula tract is still high despite seton suture. Hence, we change the old seton silk suture by a new one and wait for another 3 months. Then, we brought them to third stage operation in which all of these changes to the low tract. We excised the lower tract and removed the second loose seton suture (Table 1).

Table 1: Demographic characteristics of patients

Gender	n	%
Male	96	96.00
Female	4	4.00
Age (years)		
10–20	11	11.00
20–30	35	35.00
30–40	14	14.00
40–50	20	20.00
50–60	13	13.00
60–70	7	7.00
Mode of presentation		
First presentation	72	72.00
Perianal abscess	3	3.00
Previous surgery	25	25.00
Histopathology		
Ulcerative colitis	2	2.00
Chronic non-specific inflammatory tract	98	98

Results

The total number of patients was one hundred. Most of the patients were male 96 (96%), while female patients were 4 (4%). Age distribution of patients showed that the highest rate of patients lies between the ages of 20–30 years. Then, the age group of 40–50 years represents about 20% of patients. Most of the patients presented for the 1st time 72 (72%), while those who had previous surgery about 25 (25%) and only 3 (3%) who presented with perianal abscess. Only 2 (2%) had ulcerative colitis (Table 1) (Figures 1-4). After surgery and follow-up, about 90 male patients (93.75%), and all-female patients showed complete healing with the removal of seton suture after 3 months (Table 2) (Figures 5-7).

Table 2: Percentage of Persistence of high fistula tract in patient through stages of seton placement

Operations	First operation		Second operation		Third operation	
Gender	Male	Female	Male	Female	Male	Female
Total number of patients	96	4	6	0	3	0
Complete healing (%)	90 (93.7)	4 (100)	3 (3.15)	0	3 (3.15)	0
Persistence of high fistula tract (%)	6 (6.3)	0 (0)	6 (6.3)	0	3 (3.15)	0

After the second operation for the remaining six male patients, only three of them showed complete healing after removal of seton suture by 3 months (complete healing 50% after the second operation) while the remaining three patients showed complete healing after the third operation

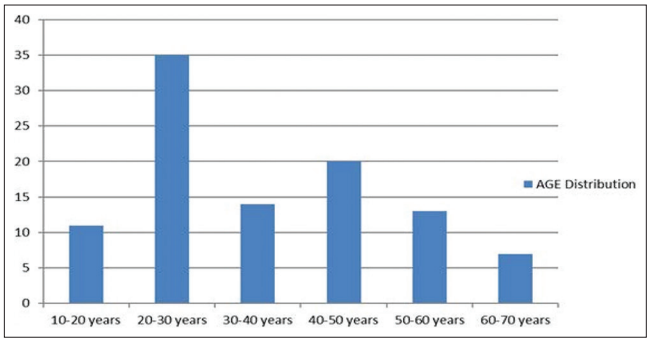

Figure 1: Distribution of patients among age group

Discussion

Perianal fistula is an embarrassing problem for the patients because of soiling and lousy odor in addition to recurrent infection and abscess formation [19].

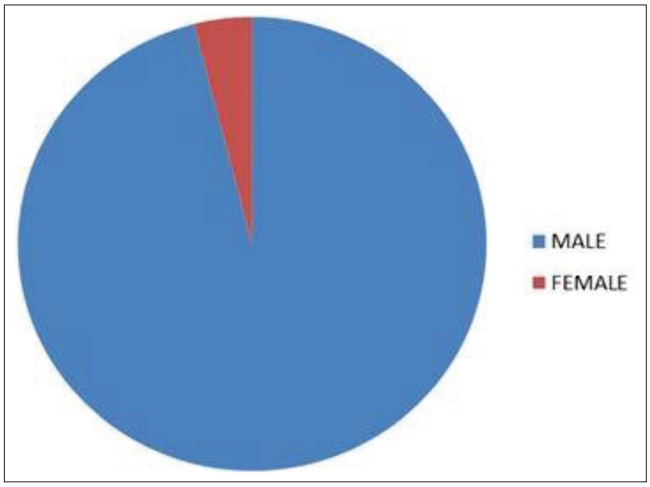

Figure 2: Distribution of patients, according to gender

The best treatment is surgical intervention. However, recurrence and sphincter incontinence is still a challenge. Several surgical approaches have developed to overcome this problem by inserting loose, thick silk seton suture in the fistula tract [20].

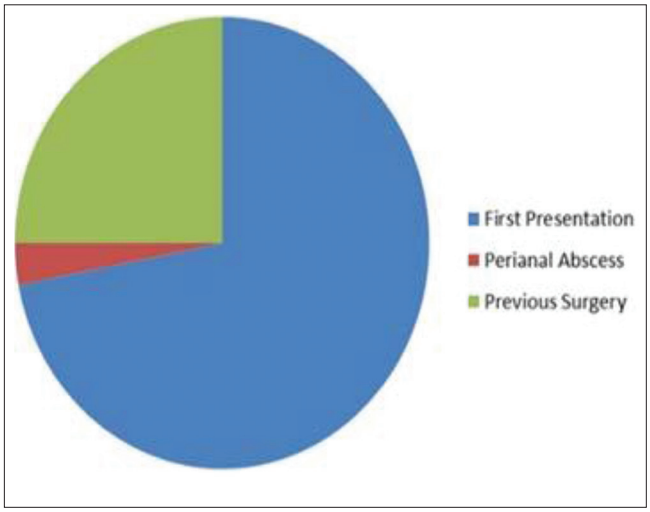

Figure 3: Mode of presentation in patients included in this study

The loose seton will remain for a long time. This study concentrates on the time of seton suture persistence in the lower part of the high type fistula in ano tract.

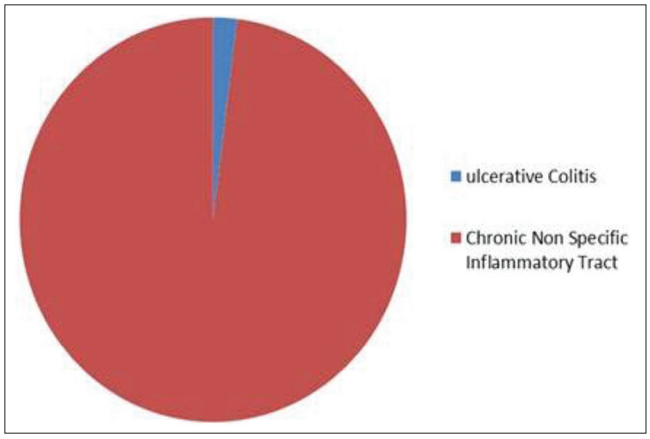

Figure 4: Results of histopathology of patients in study group

The majority of patients in the previous study complained of the long-lasting existence of seton suture, which caused soiling, discomfort, bad odor, and itching in addition to many medical visits and dressing.

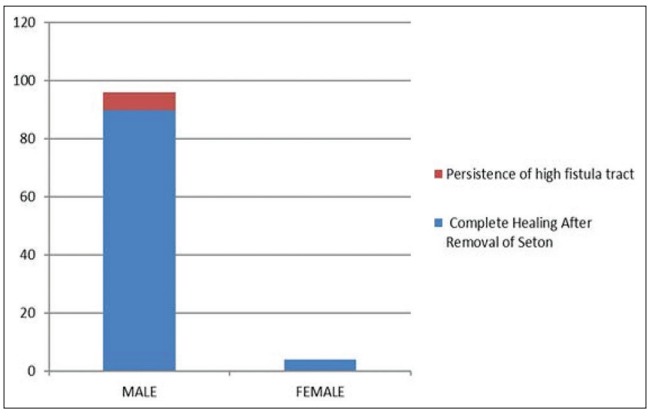

Figure 5: Percentage of high fistula tract in patients following removal of seton after 3 months of first operation and follow-up

Therefore, it was necessary to reduce the time of seton placement, promote healing, and rapid release to work and healthy life. Meanwhile, in both studies, the primary goals were to protect external anal sphincter and to lower the recurrence rate.

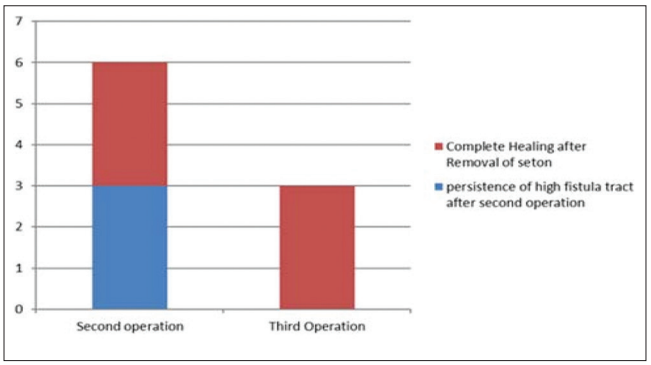

Figure 6: Percentage of persistent tract in patients underwent a second operation. This figure also shows the percentage of complete healing after third operation

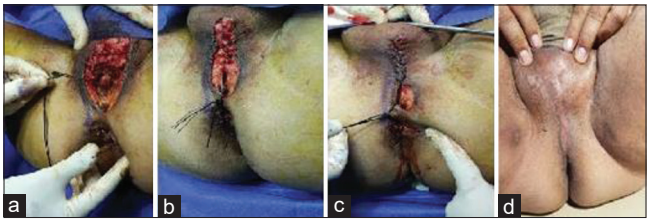

Figure 7: Perianal region of patient with high type fistula in ano undergo fistulectomy and Seton placement. (a) First stage fistulectomy to long tract in which the external opening was found in the scrotum and putting thick loose silk seton in the intersphincteric part. (b and c) Suturing of scrotum and perineum after fistulectomy, and (d) complete healing after second stage operation

In the present study, the patients showed a complete healing rate of 94% after the first surgery in comparison to published research, which showed a perfect healing rate of 91.2%. This difference is small and may reflect the mild improvement in the success rate with a short time of sutures stay. Both studies did not record any post-operative sphincter incontinence. In the present study, there was a difference in the rate of healing after the second operation (which was 50%) in comparison to the previous research (which was 82%). This difference owned at the time of loose, thick seton placement as it was 3 months in the present study while it was more than 6 months in the previous survey. In our past research, there was enough time for fibrous tissue formation. Six months of seton placement in the fistula tract were distressing for the patients calling for the introduction of this research. The conversion of high type fistula into low type due to insertion of loose, thick seton spares the sphincter. It induces healing by a chronic inflammatory reaction, granulation tissue formation, and fibrous tissue precipitation [20]. This process will enhance healing. On the other hand, pus formation, soiling, and multiple dressing were annoying for the patients. This study showed that loose, thick seton placement in the fistula tract for 3 months provides excellent protection to the external anal sphincter with less recurrence rate and less annoying symptoms to the patients and rapid release to a healthy life. Finally, we recommend this type of work of loose seton suture for 3 months because of proper protection to sphincter function and low rate of recurrence.

Conclusion

Using, loose thick seton in treatment of high type fistula in ano is safe procedure with less recurrent rate, less incontinence, and good healing. Staging surgery with use of loose thick seton suture promote good result with rapid time of healing and no more waiting time for spontaneous suture fail.

Material and data

The data used and/or resolved during the present study are ready from the corresponding author on need.

Ethical Approval

The ethical committee of the, Faculty of Medicine, Jabir Ibn Hayyan Medical University.

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