

Modified Moshe-Gips Technique (Pilonidal Sinus Endo Fistulectomy) for Pilonidal Sinus Treatment Case Series

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Abstract: Pilonidal sinus is a common condition that predominantly affects young adults of Mediterranean origin, with men being twice as likely to develop the disease. This ailment is characterized by ingrown hair in the natal cleft region, resulting in chronic inflammation and the formation of a sinus tract that may fail to close due to the presence of a foreign body. Many surgical interventions have been developed to manage this condition, but they often require high surgical skills and close medical follow-up due to high recurrent rates and post-operation complications. Minimally invasive techniques, such as endoscopic pilonidal sinus treatment (EPSiT procedure), laser pilonidalis minimal invasive laser excision (smile procedure), and the Moshe-Gips technique, have been developed to reduce recurrence and post-operative complications. All techniques above depend on removing the impact of foreign bodies and destroying the tract from the inside. Moshe-Gips technique depend on removing the external sinus pits then curating the sinus tract to remove all foreign body and irrigating the tract with H₂O₂ as an antiseptic and hemostatic agent has been approved in the first pilonidal conference in Berlin in 2017 and studied by our surgical team under the name of (Advantages and Efficacy of Minimal Invasive Moshi-Gips Technique in Pilonidal Sinus Surgery) shows very good results and a low recurrent rate. The modified Moshe-Gips technique (pilonidal sinus endo fistulectomy) which was developed by our surgical team involves removing the all tract under the skin by punch puncture as one bulk, eliminating foreign bodies and chronic granule tissue and fibrotic tract walls, and irrigating the tract with H₂O₂ as a local antiseptic and hemostatic agent. This study aims to assess the efficacy of the modified Moshe-Gips technique (pilonidal sinus endo fistulectomy) and compare it to the original technique. Our findings suggest that the modified technique (pilonidal sinus endo fistulectomy) is as effective as the original technique and may have advantages over the original interventions by reducing the recurrent rate by nearly 0%. The results of this study provide evidence for the feasibility of using the modified Moshe-Gips technique (pilonidal sinus endo fistulectomy) in clinical practice. **Significance:** The modified Moshe-Gips technique (pilonidal sinus endo fistulectomy) is a novel minimally invasive approach used in the pilonidal sinus treatment developed by our surgical team based on the original technique. It involves the complete removal of external sinus pits and fibrotic tracts under the skin as one bulk if possible with a small surgical incision using a punch puncture method. The wound is then irrigated with hydrogen peroxide to achieve hemostasis and treat any infections. **The Objective of Evaluation:** This study aims to assess the benefits and effectiveness of the modified Moshe-Gips technique (pilonidal sinus endo fistulectomy) in pilonidal sinus surgery. **Design, Setting, and Participants:** From 5/6/2022 till 1/6/2023. Five patients have been operated on by the modified Moshe-Gips technique (pilonidal sinus endo fistulectomy) all patients with primary non-infected chronic pilonidal sinus. **Interventions:** The modified Moshe-Gips technique involving endo fistulectomy was used to treat pilonidal sinus. The study evaluated several outcomes and measures, including the primary endpoint of the duration of the operation from the beginning of anesthesia to the completion of dressing. Secondary endpoints included the success rates of the procedure, postoperative complications such as bleeding, oozing, infection, recurrence, healing time, time to return to work, and ratings of intraoperative and postoperative pain as well as patient satisfaction. Rate on a score from 1 less to 10 a max Results 5 patients operated in modified Moshe –Gips (pilonidal sinus endo fistulectomy). The average operation time was 16.6 m and SD 2.19. The average post-operation bleeding at 48 h on a scale from 1 to 10 was 2.3 and SD 0.83. Infection was zero. The recurrent rate within 6 m after the operation was zero. Average post-operation pain on a scale from 1 to 10. was 1.25 and SD 0.44. The average healing time in weeks was 4.8 and SD 0.83. The average time back to work by weeks was 5.2 days and SD 0.83. The average post-operation patient satisfaction was 9.6 and SD 0.54. **Conclusions and Relevance:** The modified Moshe-Gips technique, also known as pilonidal sinus endo fistulectomy, has demonstrated effectiveness in treating pilonidal sinus with minimal postoperative disturbances and faster healing, allowing patients to return to normal activities sooner and at zero recurrent rates in our study. In conclusion, the modified Moshe-Gips technique (pilonidal sinus endo fistulectomy) offers a promising alternative to traditional surgical methods for treating pilonidal sinus and has the lowest recurrent rate among the other procedures even for the original Moshe-Gips technique, with the potential for faster healing and quicker return to normal activities as well as the original technique. Upon the results we have, our recommendation is to start with this technique as the primary surgical procedure for primary non-complicated pilonidal sinus, reserving traditional surgery for recurrent or complicated cases.

Keywords: A minimally invasive technique in pilonidal sinus surgery, a new technique in pilonidal sinus surgery, pilonidal sinus endo fistulectomy, endo fistulectomy, modify gips technique in the pilonidal sinus, gips technique in the pilonidal sinus.

1. Introduction

Pilonidal disease, which involves a hair-containing sinus or abscess in the intergluteal cleft, predominantly affects young

working-age males, with an incidence of 26 per 100,000 populations. As the cause is unknown, it is offered to be related to the natal cleft creating a suction that draws hair into the midline groove. While an acute abscess can be treated with incision and drainage, chronic pilonidal sinuses may require

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more extensive surgery, such as unroofing the tract, creating a small lateral incision, or resecting complex and/or recurrent sinus tracts with a Z-plasty, advancement flap, or rotational flap [1,2]. Several new minimally invasive treatments, such as the Moshe-Gips technique [3,4], smile procedure (sinus pilonidalis minimal invasive laser excision) [5], and EPSiT procedure (endoscopic pilonidal sinus treatment) [6] have been proposed and shown promising results in the treatment of pilonidal sinus. In our clinic, we try to make modifications and improve the Gips technique to improve operation outcomes, especially by reducing the recurrent rate.

2. Methods

Five patients diagnosed with non-complicated or recurrent pilonidal sinus.

All patients were informed in detail about the potential risks and benefits of both operations and provided written consent for the surgical procedure once the patient go to the operation room.

The surgical procedure was performed under local anesthesia, with one dose of antibiotic treatment given to all patients before the procedure to prevent infection.

End Points and Statistical Power:

The primary endpoint was the time of operation, while secondary endpoints included rates of operative success, postoperative complications, healing time, time back to work, recurrent rate, and pain ratings.

Rate on a score from 1 less to 10a max

Operation Techniques:

All patients were placed in the prone jack-knife position. Both buttocks were retracted on opposite sides with adhesive tape.

Under LA 60 ml xylocaine 1% with epinephrine 1/100000 to reduce interoperation bleeding, after preparing the skin with antiseptic sol I remove the lateral and central pits if thereby punch puncture no.7 and no.4 according to pit size, I try to

The plan of treatment was: operation by modifying gips technique under local anesthesia as described above.

remove the tract along with pits as one bulk by the punch puncture over the guide wire to make sure of complete tract removing and using scissors when needed then irrigate the wound by H₂O₂, finally packing the wound by antibiotic dressing and seal it by sterile dressing ...

in this topic, I will present two cases as a sample provided with photos.

Case No.1:

A 20-year-old patient complain of a natal cleft tender lump with intermittent oozing 3 months ago, he reports it was small and mildly painful at first then get an increase in size and pain and suddenly opened, and pus come out after that he get relief and since that time it he complains of intermittent discharges

He didn't give any past medical or surgical issues also no medical or food allergies...

Physical exam revealed: patient looks well, afebrile, in mild pain as he reports, Lt buttock lateral pit and central pit with hard subcutaneous tract and minimal bloody purulent oozing from the lateral pit...

The diagnosis was pilonidal sinus....



Picture 1: pilonidal sinus with lateral pit and granuloma and another central pit with subcutaneous short fibrotic tract



Picture 2: Remove the pits with the tract as one bulk then pack the wound with an antibiotic dressing



Picture 3: follow up after 2 days without bleeding, infection, or pain



Picture 4: after 4 weeks' the patient completely recover without complications and on his last visit after 6 months of the initial procedure he was free from recurrent

Case No.2

18 y old patient complain of a natal cleft tender lump with intermittent oozing 4 months ago without other complaints but itching ...

He didn't give any past medical or surgical issues also no medical or food allergies...

Physical exam revealed: patient looks well, afebrile, in mild pain as he reports, Rt buttock lateral pit and central pit with hard subcutaneous tract and minimal bloody purulent oozing from the lateral pit...

The diagnosis was pilonidal sinus....



Picture no.5: pilonidal sinus with Rt lateral pit and granuloma and another central pit with subcutaneous short fibrotic tract

The plan of treatment was: operation by modifying gips technique under local anesthesia as described above



Picture 6: Remove the pits with the tract as one bulk then pack the wound with an antibiotic dressing



Picture 7: Follow up after 2 days without bleeding or infection or pain



Picture 8: Follow up after 4 weeks with complete recovery but develop keloid scar over the lateral pit wound.

3. Discussion

Many minimally invasive techniques have been developed to reduce post-operation complications like the Moshe Gips technique which has been approved as an effective minimally invasive technique in pilonidal sinus treatment and has been detected in the first Pilonidal Sinus conference in Berlin 2017 organized by the Australian pilonidal society [3,4]. sinus pilonidalis minimal invasive laser excision (smile procedure) [5] and endoscopic pilonidal sinus treatment (EPSiT procedure) [6]. All these techniques proved effective in reducing post-operation complications and recurrent rates but still had a low chance. This study aims to identify the advantages of the modified Moshe -Gips technique over the original MosheGips technique [3,4] after being developed by our surgical team by removing all the sinus tract and pits as one bulk. in our research, there is no such technique has been tried before to manage the pilonidal sinus. The ideal therapy would be achieving the lowest recurrent which can have happened because of the remaining sinus fibrotic tract and quick cure that allowed patients to return rapidly to normal activity, with minimal morbidity and a low risk of complications as well as the origin technique [3,4]. The modified Moshe-Gips technique (pilonidal sinus endofistulectomy) is a novel minimally invasive approach used in the pilonidal sinus treatment developed by our surgical team based on the original technique. It involves the complete removal of external sinus pits and fibrotic tracts under the skin as one 10 of 14 bulk if possible with a small surgical incision using a punch puncture method. The wound is then irrigated with hydrogen peroxide to achieve hemostasis and treat any infections.

Design, Setting, and Participants:

From 5\6\2022 till 1/6/2023

Five patients have been operated on by the modified Moshe-Gips technique (pilonidal sinus endofistulectomy) all patients with primary non-infected chronic pilonidal sinus.

Assessment and follow up

All patients were examined during follow-up with a standard physical examination after 48 hours, then weekly visits for 6 weeks then the last visit after 6 m from the operation date.

Statistical Analysis

After obtaining data on surgical duration, time to complete healing, and return to work, as well as assessing the severity of bleeding and pain using a numerical rating scale ranging from 1 to 10, statistical analysis was conducted using a Microsoft Office Excel spreadsheet to determine the average and standard deviation.

4. Results

Patient Characteristics: 5 patients were involved in this study with primary non-complicated pilonidal sinus disease to modified Gips technique (pilonidal sinus endo fistulectomy). no other criteria like old or sex or obesity or pits number depended.

Operative Time. was (16.6 minutes on average) and (SD 2.19).

Post-operation bleeding within 48 h. was (2.8 on a scale of 10 on average) and (SD 0.83).

Post-operation infection. no infection was detected.

Post operation recurrent rate within first 6 months. no recurrence was detected.

Post-operation pain. was (1.2 on a scale of 10 on average) and (SD 0.44).

Post-operation healing time by weeks. was (4.8 weeks on average) and (SD 0.83).

Post-operation time back to work by days. patients enrolled in the modified Gips minimally invasive treatment go back to their normal lifestyle and work (5.2 days on average) and (SD= 0.83).

Patients satisfaction. patients underwent in the modified Gips minimally invasive technique group show high satisfaction at 1 month and 6 months after surgery (an average of satisfaction 9.6 from 10 on a scale) and (SD 0.54).

	modified Moshe-Gips		Moshe-Gips	
	average	SD	average	SD
Operative Time	16.6 minute	2.19	16.75 minute	2.3
Post-operation bleeding within 48 h	2.8 on a scale from 10	0.83	2 on a scale from 10	0.81
Post operation infection	0	0	0	0
Post operation recurrent rate within first 6 month	0	0	0.25	0.5
Post operation pain	1.2 on a scale from 10	0.44	1.25 on a scale from 10	0.5
Post-operation healing time by weeks	4.8 week	0.83	4.5 week	0.81
Post-operation time back to work by days	5.2 day	0.83	4.5 day	0
Patients satisfaction	9.6 on a scale from 10	0.54	9.7 on a scale from 10	0.5

Figure 1 compares the result between the modified Moshe Gips technique and the original Moshe Gips technique

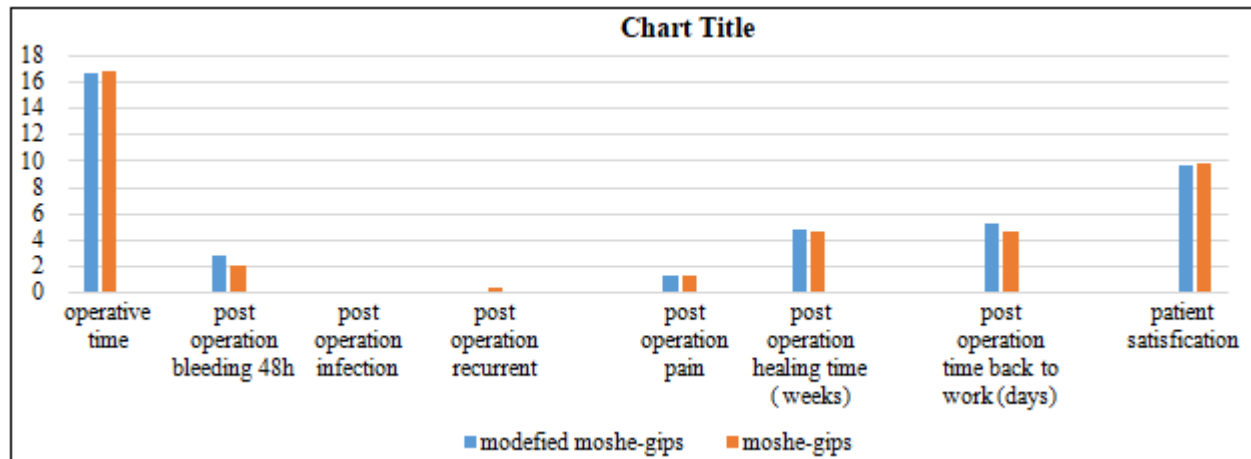


Figure 2: Average of results between both the Moshe-Gips and modified Moshe-Gips techniques

Note that the modified Moshe Gips technique has the nearly same result as the original Moshe Gips technique but no recurrence has been detected.

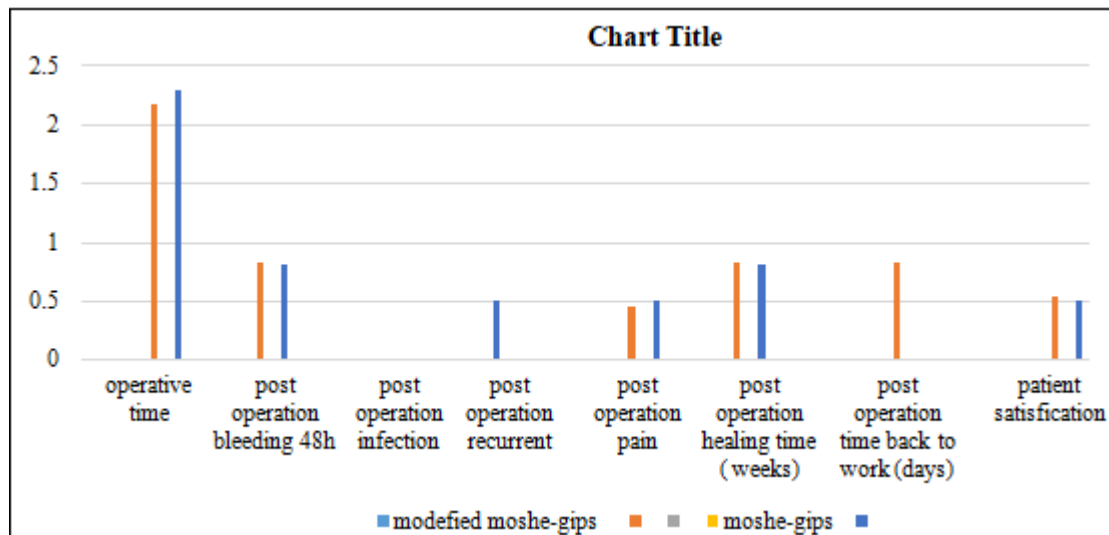


Figure 3: SD difference between both Moshe-Gips and modified Moshe-Gips technique.

5. Conclusion

The modified Moshe-Gips technique (pilonidal sinus endo fistulectomy) is a promising minimally invasive surgical approach for the treatment of pilonidal sinus, with the potential for faster healing and a lower recurrence rate compared to traditional surgical and minimally invasive methods. The study evaluated the efficacy and recurrent rate of the modified technique in five patients with primary non-infected chronic pilonidal sinus, and the results showed a success rate of 100%, zero postoperative recurrent has been detected in all five patients after 6 months, and an average healing time of four weeks. Therefore, the modified Moshe-Gips technique is recommended as the primary surgical option for primary non-complicated pilonidal sinus, with traditional surgery reserved for recurrent or complicated cases. Further studies are needed to validate the effectiveness of this technique in larger patient populations.

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