

## Assessment of Gips Technique for Management of Pilonidal Disease

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### ABSTRACT

**Background:** Pilonidal sinus disease (PSD) is currently viewed as an acquired condition that develops abscesses and typically several fistula tracts because of a continuous inflammatory response to the retention of hair follicles in the intergluteal gap.

**Objectives:** The aim of the current work was to evaluate the outcomes of Gips technique for management of pilonidal disease (PD) using minimally invasive surgery and following the impact of this procedure on the patients.

**Patients and methods:** This study included a total of 40 patients with pilonidal disease, attending at Department of General Surgery, Faculty of Medicine, Al-Azhar University Hospitals, Assuit. This study was conducted between February 2021 and January 2022. All patients were treated by Gips method to assess this method in controlling of pilonidal sinus.

**Result:** The duration of surgical procedures ranged 9-17 min ( $11.1 \pm 2.2$ ), duration of health facility stays ranged 6-24 days ( $11 \pm 6.5$ ), post-operative complications (contamination; 2.5%, wound dehiscence 0%, bleeding and recurrence; 5%). Patients have been discharged from health facility in brief time and fast recuperation to regular everyday activities.

**Conclusion:** It could be concluded that the Gips approach is an easy procedure for the treatment of pilonidal disease and is safe. It has a low complication and short recuperation and attractive aesthetic outcome.

**Keywords:** Gips, Technique, Management, Pilonidal Disease.

### INTRODUCTION

Pilonidal sinus disease (PSD) is a continual and inflammatory sickness that regularly takes place on the sacrococcygeal place. Although the etiology isn't always precisely known, it's far frequent that hair boom penetrating into the subcutaneous cysts ensuing overseas frame response and infection. The common headaches of PSD are formation of cellulitis, abscess, and fistulae<sup>(1)</sup>.

Pilonidal sinus is considered as an easy and regularly going on sickness localized on the sacro coccygeal area. However, on the inter gluteal place, it can regularly become a continual and complex sickness. In a few cases, it can fistulize as much as the gluteal place and seem on the secondary orifices<sup>(2)</sup>.

Development of PSD necessitates surgical intervention, and there are numerous conservative and surgical remedies including excision and number one closure, cryosurgery, marsupialization, and pores and skin grafting it's far a not unusualplace opinion that PSD ought to be handled with massive excision and flap methods<sup>(3)</sup>.

Limited excision of the pilonidal sinus tract may be a higher remedy choice as compared with massive excisions in phrases of recuperation time and patient's comfort<sup>(4)</sup>.

Presently, many surgeons deal with pilonidal sickness through huge excision of the pilonidal complex-containing tissue, right all the way down to the sacral fascia, leaving a lay open or a number one sutured midline wound. Other surgeons, even as nevertheless dedicated to the equal huge excisions, use extra state-of-the-art strategies including numerous sorts of pores and skin flaps designed to hold the incision farfar from the midline or flatten the natal

cleft.<sup>(5)</sup> Obviously, such large operations regularly require hospitalization, fashionable or local anesthesia, and variable use of stitches, drains, and antibiotics.

Pilonidal sinus operations are infamous for his or her related morbidity, recurrence rate, and negative beauty result<sup>(6)</sup>. Few remedies, however, efficiently deal with the obtained overseas frame pathogenesis of pilonidal sickness with out resorting to the typically used huge excisions<sup>(7)</sup>. Despite the provision of numerous strategies, the recurrent quotes are nevertheless high, and the look for an excellent remedy continues to be on going. With new technical improvements in current years, physicians are more and more more turning into attracted in the direction of minimum surgical methods for the remedy of continual PSD<sup>(8)</sup>. Minimally invasive surgical strategies have become enormous in current years because of the multiplied enjoy and improvement of recent instruments<sup>(9)</sup>.

In1965, Lord and Millar<sup>(10)</sup> cautioned a minimally invasive operative approach, together with a slim elliptical excision of pilonidal pits best and debridement and cleansing of the unroofed underlying hollow space Small cylindrical brushes have been used to cast off hair and smooth lateral tracts<sup>(11)</sup>. In 1980, Bascom stated character excision of midline openings and introduced a laterally located parallel incision to higher discover and smooth the pilonidal hollow space and to facilitate identity of diseased follicles. Bascom additionally sutured midline operative wounds and excised lateral tracts<sup>(12)</sup>.

This looks at describes an ambulatory surgical remedy for pilonidal sickness which integrates the standards cautioned through each Lord and Millar and Bascom and introduces using pores and skin trephines

for the smooth excision of pilonidal pits and debridement of underlying cavities and tracts<sup>(13)</sup>.

This study was aimed to evaluate the Gips technique for management of Pilonidal disease using minimally invasive surgery at AL-Azhar University hospital, Department of General Surgery. And following the impact of this procedure on the patients regarding reduction of hospital stay, post-operative pain, and disability, effectiveness of procedure for relieving of symptoms and its duration, and rate of postoperative complications.

## **PATIENT AND METHODS**

This study included a total of 40 patients with pilonidal disease, attending at Department of General Surgery, Faculty of Medicine, Al-Azhar University Hospitals, Assuit. This study was conducted between February 2021 and January 2022.

All patients were treated by Gips method to assess this method in controlling of pilonidal sinus. The pilonidal sinus was diagnosed with signs and symptoms using sonography, probing, and MRI. All surgeries were done by the first author under supervision of a consultant expert in pilonidal sinus surgery.

**Inclusion criteria:** patients with the pilonidal disease aged 18-60 years with pilonidal sinus or cyst inflicting foul odor, hair sticking out from the lesion, forming multiple sinus tracts or holes inside the pores, and not responding to a conservative remedy.

**Exclusion criteria:** (1) Recurrent cases. (2) Patients below 18 and above 60. (3) Inability to give informed consent. (4) Patients with chronic disease as (diabetic, liver failure or renal failure). (5) Pregnancy. (6) Coagulopathy.

**All patients were submitted to the following pre-operative work up:**

**1- Full history taking including:** (a) Personal history (age, sex, and special habits: smoking, alcohol intake, etc.). (b) History of present illness. (c) Past history (any chronic diseases, previous operations, etc.). (d) Family history (similar conditions). (e) Complaint (pilonidal sinus or cyst causing foul odor, hair protruding from the lesion, formation of more than one sinus tract or holes in the skin not responding to medical and conservative treatment etc.).

### **2- Complete general and local examination:**

**General:** Including the body built, weight, pulse, and blood pressure.

**Local:** Inspection and palpation to determine the openings of tract, length of tract, discharge from openings of tract, severity of disease, and previous scar of operation of pilonidal sinus.

**3- Pre-operative investigations:** The diagnosis of a pilonidal sinus can be made on clinical bases, by

Identifying the epithelialized follicle opening, which can be palpated as an area of deep induration beneath the skin in the sacral region. These tracts most run in the cephalic direction. When the tract runs in the caudal direction, perianal sepsis may be present.

**In addition, the following investigations could help me in the diagnosis of pilonidal sinus disease.**

1- Sinography: Injection of radio opaque material into the track through the opening gave an idea about the depth, level and direction of the sinus track.

2- Sonography of the pilonidal sinus: It appeared sonographically as a dimple in the skin or as Ostia that lead vertically to a hyper-echoic track. The track continues through the midline raphe towards the dorsal, surface of the coccyx. The sinus may widen deeply if there is associated pilonidal cyst. It is done for trial.

**4-Magnetic Resonance Imaging (MRI):** To differentiate between pilonidal sinus sickness and fistula in the anus.

### **Surgical Technique:**

**Preoperative preparation:** All patients have been organized earlier than surgical procedure with the usage of proper shaving of the encompassing hair, proper antibiotic administration.

Local anesthesia was done by using of 2 percent lidocaine with adrenalin. The natal cleft was explored with a skinny 0.5 to 1.0 mm rounded tip probe and every seen pit was evaluated for its intensity and the path of underlying tracts. Edema related to acute contamination obscured the pits occasionally, however those might be determined with the aid of using probing the midline pores and skin close to the abscess. All openings and tracts had been then cored out making use of Keyes pores and skin trephines, 2.0 to 9.0 mm in diameter. Small pits with brief tracts had been eliminated with 2. zero to three.zero mm trephines. Pits main to subcutaneous cavities had been then excised right all the way down to the hollow space with 4.0 to 5.0 mm trephines. Openings of fistulas and drainage openings for acute suppurations had been generally excised the usage of 6.zero to 9.zero mm trephines. Groups of two or three adjoining pits had been once in a while eliminated together, the usage of one 4.zero to 6.0 mm trephine.

Fore achopening, the trephine turned into first superior perpendicularly to the pores and skin. After penetrating the pores and skin, the trephine turned into aligned with inside the path of the tract and excision all cavities and tracts from hair, particles, and granulation tissue. Trephines (4.zero mm or wider) had been extensively utilized as chisels with inside the hollow space, to carve out scar tissue and embedded hair.

Cotton applicators dipped in percentage hydrogen peroxide answer have been used to loosen

and expel particles from the pilonidal hollow space. Bleeding turned into minimum at some stage in the system and no cautery turned into required. All trephine-made openings have been left unpacked and now no longer sutured. Patients have been saved supine beneath an hour-lengthy statement earlier than discharge and have been informed to bathe the operated web website online numerous instances daily, beginning 12–24 hours after the operation. The want for non-stop occlusive inter gluteal dressing turned into strongly emphasized.

Routine regular interest turned into in any other case allowed. Postoperatively, patients had been accompanied up in 1 to two week durations till the injuries healed. On every go to wounds have been superficially debrided as important and the close by pores and skin turned into shaved. If early failure had become obvious, an same complementary operation turned into performed, with trephine excision of continual pits and exploration and cleansing of underlying hollow space. With regard to the sort of trephine used, the Keyes kind turned into fairly uncomfortable while making use of the 2.0 and 3.0

mm length for the excision of small pits. Its conical enlarging outside contour restricted its subdermal penetrating potential due to the chance of tearing on the pores and skin level. Ophthalmic trephines with immediately outside contour (Elliot or Searcy kind) are premier for those small pits. Disposable trephines (punches) also can be used for the excision of pores and skin pits. These punches, however, are shelved a few 8.zero mm from their slicing aspect and also are brief and fragile, restricting their use with inside the excision of deep extending tracts and with inside the debridement of pilonidal cavities.

**Post-operative management and follow-up:**

The patients were discharged from hospital 6-24 Hours post-surgery. Patients were recommended to keep away from straining and bodily effort, eating fiber rich meals with excess fluids. Tool softeners, analgesics and anti-inflammatory antibiotics were given for 3 postoperative days. follow up the patient every 2 weeks up to 3 months, and then monthly up to 12 months.



**Fig. (1):** Opening of pilonidal sinus



**Fig. (2):** Local anesthesia of PD.



**Fig. (3):** Propping of tract of PS.



**Fig. (4):** Subcutaneous granulation tissue, debris, and hair were removed with a skin trephine, which was advanced over the metal probe connecting the 2 sinus orifices <sup>(14)</sup>.



**Fig. (5):** Excision of pits and derroofing of the tract of pilonidal sinus.



**Fig. (6):** Punching of skin pits.



**Fig. (7):** Curettage and deroofing of PS.



**Fig. (8):** Excision of skin pits.



**Fig. (9):** A, Pilonidal disease in a young patient who was treated with the Gips procedure. B, Subcutaneous granulation tissue, debris, and hair were removed with a skin trephine, which was advanced over the metal probe connecting the 2 sinus orifices. C and D, Trephine-made openings in a female patient and a male patient, respectively, were left unpacked or were packed for only a few hours and were not sutured. E, at 3-month follow-up, the male patient experienced complete wound healing <sup>(14)</sup>.

**Ethical consent:**

An approval of the study was obtained from Al-Azhar University Academic and Ethical Committee. Every patient signed an informed written consent for acceptance of participation in the study. This work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

**Statistical analysis**

Data were analyzed using Statistical Program for Social Science (SPSS) version 24. Quantitative data were expressed as mean ±SD and Qualitative data were expressed as frequency and percentage. Mean (average): the central value of a discrete set of numbers, specifically the sum of values divided by the number of values. Standard deviation (SD): is the measure of dispersion of a set of values. A low SD indicates that the values tend to be close to the mean of the set, while a high SD indicate that the values are spread out over a wider range. P value < 0.05 was considered significant.

**RESULTS**

Table (1) shows the description of demographic data in all studied patients. **As regard age**, the mean age of all studied patients was 22.7 ± 2.28 years with minimum age of 18 years and maximum age of 29 years. **As regard sex**, there were 36 males (90%) and 4 females (10%) in the studied patients.

**Table (1): Description of demographic data in all studied patients.**

Item		Studied patients (N = 40)	
Sex	Male	36	90%
	Female	4	10%
Age (years)	Mean ±SD	22.7 ± 2.28	
	Min - Max	18 – 29	

Table (2) shows the description of clinical data in all studied patients. There was Suppurative discharge in 24 patients (60%), pain in 16 patients (40%), swelling in 32 patients (80%), bloody discharge in 8 patients (20%) and abscess in 12 patients (30%). As regard number of pits, it was 1 pit in 4 patients (10%), 2 pits in 20 patients (50%), 3 pits in 8 patients (20%), 4 pits in 4 patients (10%) and 5 pits in 4 patients (10%).

**Table (2): Description of clinical data in all studied patients.**

Item		Studied patients (N = 40)	
Suppurative discharge	No	16	40%
	Yes	24	60%
Pain	No	24	60%
	Yes	16	40%
Swelling	No	8	20%
	Yes	32	80%
Bloody discharge	No	32	80%
	Yes	8	20%
Abscess	No	28	70%
	Yes	12	30%
Number of pits	1 pit	4	10%
	2 pits	20	50%
	3 pits	8	20%
	4 pits	4	10%
	5 pits	4	10%

Table (3) shows the description of operative time and hospital stay in all studied patients.

As regard operative time, the mean time of all studied patients was 11.1 ± 2.28 min with minimum time of 9 min and maximum time of 17 min. As regard hospital stay, the mean hospital stay of all studied patients was 11 ± 2.6 hours with minimum stay of 6 hours and maximum stay of 24 hours.

**Table (3): Description of operative time and hospital stay in all studied patients.**

		Studied patients (N = 40)
Operative time (min)	Mean ±SD	11.1 ± 2.28
	Min - Max	9 – 17
Hospital stay (hours)	Mean ±SD	11 ± 2.6
	Min - Max	6 – 24

Table (4) shows the description of post-operative complications in all studied patients. There was infection in 8 patients (20%), bleeding in 4 patients (10%), recurrence in 4 patients (10%) and there were no cases with wound dehiscence.

**Table (4): Description of post-operative complications in all studied patients.**

		Studied patients (N = 40)	
Infection	No	32	80%
	Yes	8	20%
Bleeding	No	36	90%
	Yes	4	10%
Wound dehiscence	No	40	100%
	Yes	0	0%
Recurrence	No	38	95%
	Yes	2	5%

Table (5) shows the description of satisfaction in all studied patients. There was infection in 38 patients (95%) satisfied and 2 patients (5%) not satisfied in the studied patients.

**Table (5): Description of satisfaction in all studied patients.**

		Studied patients (N = 40)	
Satisfaction	Satisfied	38	95%
	Not satisfied	2	5%

**DISCUSSION**

Treatment Options for pilonidal disease diverse remedy techniques had been postulated. Hair elimination and hygiene alone, excision and number one wound closure, excision and secondary wound closure, and diverse flap techniques. More recently, there was a dramatic shift to control of patients with PD in an outpatient placing. The Gips system, a progressive minimally surgical approach for PD, became brought in 2008 primarily based totally on a huge consecutive collection of greater than 1300 patients (13).

Studies have proven promising effects and minimum healing time for the Gips system in person and pediatric patients (10-14). In Gips system, trephines have been handy whilst implemented to surgical remedy of pilonidal ailment. Individual pits may be without problems eliminated with simply one hand twist and with minimum rims of tissue now no longer exceeding 1.zero to 2.zero mm. Inserted via pit openings, trephines additionally function incredible sharp debridement gear inside pilonidal cavities and alongside fistulous tracts consequently obviating using brushes (13).

The spherical establishing produced through the trephine serves as a drainage port, imparting undisturbed endured outflow of inflamed fluid till the pilonidal hollow space dries and collapses from inside, consequently making using drains or widespread incisions unnecessary. By in my view punching out every pit, gaps of unaffected wholesome pores and skin are left to hyperlink and maintain the antagonistic

aspects of the natal cleft. These bridges stabilize the perforated roof of the pilonidal hollow space, save you lateral traction of hollow space partitions and pores and skin margins, and facilitate undistorted recovery of the natal cleft with minimum scarring (13).

As a result, patients enjoy minimum ache or disruption to day by day activity. The trephine approach nearly lays open the pilonidal sinus and permits a one-level remedy for patients offering with both acute suppuration or persistent ailment ensuing in equal long-time period results and negligible postoperative contamination rates (13).

Also, **Di Castro et al.** (2) mentioned use of the equal approach on 2347 patients and established a recurrence fee of five.eight% at an average follow-up of sixteen month,however this examine became comparatives examine protected approximately 61percentwith Gips approach, however a huge examine of pilonidal sinus, became wherein 1358 person PD patients have been handled with the Gips system beneathneath neighborhood anesthesia, confirmed a recurrence fee of thirteen% at five years and sixteen% at 10 years ,so we can't deny it (14, 15). In this examine we protected forty patients with Ranged From 18 To 29 Years With Mean Age Of 22.7 ± 2.28 Years , 90% Were Males and Remaining 10% Were Females There became enormous distinction among our examine and different research which 80% Were Males And Remaining 20% Were Females.

**Turkyilmaz** mentioned using this approach with the suggest (SD) period of the operative system became 14 (three) minutes (range, 10–20 minutes) (14). Mean operative time became 15.three±6.five minutes, reported through **Gips et al.** (13). In our examine the suggest time of operative system of all studied patients became 11.1 ± 2.28 min with minimal time of nine min and most time of 17 min as regard health facility live, the suggest health facility live of all studied patients became 11 ± 2.6 hours with minimal live of 6 hours and most live of 24 hours. According to operative time and health facility live, there's no enormous distinction among our examine and different research (16).

Postoperative medical exam and smartphone interviews have been done for follow-up. The suggest follow-up duration became five months (range, 1–thirteen months); 17 of nineteen patients (89%) made a whole healing. Two patients (11%) mentioned recurrence withinside the 0.33 and fourth months following the system and have been handled with a repeat Gips system 6 months after the primary remedy. Improvement became mentioned after a 2nd Gips system in 1 of two patients who had recurrence, leaving the fulfillment fee of the system in our exercise at 95% (18/19) as mentioned through (13).

In the current study, post-operative complications were contamination in eight patients

(20%), bleeding in four patients (10%), recurrence in 2 patients (5%) and there were no instances with wound dehiscence or infection in all studied patients. 38 patients (95%) were satisfied, and a couple of patients (5%) were unsatisfied. As regard bleeding, contamination and recurrence), there were no enormous distinction among patients.

Regarding recurrence in 2 patients, one of them who became inflamed was handled through exact antibiotic and got better after 2 weeks, and the second case became recurrent after three months and re-do through Gips approach.

Advantages of the Gips system are numerous. It is without problems applicable, inexpensive, properly tolerated, and calls for minimum postoperative care (17).

Its effects are satisfactory. Health offerings and the health facility admissions method are much less pricey in college hospitals in Azhar Assuit. Patients in our overview have been discharged with inside the equal day or the subsequent day; however, patients may be discharged inside some hours. In the future, it's miles feasible for suitable instances to be controlled in an outpatient placing with neighborhood anesthesia only. Because their postoperative publications are eventless, those patients may be controlled with out hospitalization. Recovery is short and permits for early go back to high school and different bodily activities.

## CONCLUSION

It could be concluded that the Gips approach is an easy procedure for the treatment of pilonidal disease and is safe. It has a low complication and short recuperation and attractive aesthetic outcome.

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## REFERENCES

1. Chia C, Tay V, Mantoo S (2015): Endoscopic pilonidal sinus treatment in the Asian population. *Surg Laparosc Endosc Percutaneous Tech.*, 25(3): 95-7.
2. Di Castro A, Guerra F, Levi Sandri G *et al.* (2016): Minimally invasive surgery for the treatment of pilonidal disease. The Gips procedure on 2347 patients. *Int J Surg.*, 36(Pt A): 201-205.
3. Levinson T, Sela T, Chencinski S *et al.* (2016): Pilonidal Sinus Disease: A 10-Year Review Reveals

Occupational Risk Factors and the Superiority of the Minimal Surgery Trephine Technique. *Mil Med.*, 181(4): 389-394.

4. Velasco A, Dunlap W (2009): pilonidal disease and hidradenitis. *J Surg Clin North Am.*, 89(3): 689-701.
5. Velitchklov N, Verdarova M, Losanoff L *et al.* (2001): fatal case of carcinoma arising from a pilonidal sinus tract. *The Ulster Medical Journal*, 20: 61-63.
6. Meinero P, Mori L, Gaslioli G (2014): Endoscopic pilonidal sinus treatment (E.P.Si.T.). *Tech Coloproctol.*, 18: 389-392.
7. Arnold J (2008): Pilonidal sinus. *Ann R Coll Surg Engl.*, 90(1):87- 88. .
8. Giarratano G, Toscana C, Shalaby M *et al.* (2017): Endoscopic pilonidal sinus treatment: long-term results of a prospective series. *J Soc Laparoendosc Surg.*, 21(3): e2017.00043. doi: 10.4293/JSLS.2017.00043
9. Sosa Fernandez L, Milone F, De Palma G (2018): Endoscopic Pilonidal Sinus: How Far Have We Come?. *Dis Colon Rectum*, 61(6): 343. doi: 10.1097/DCR.0000000000001100.
10. Lord P, Millar D (1965): Pilonidal sinus: a simple treatment. *Br J Surg.*, 52: 298-300.
11. Milone M, Musella M, Di Spiezio Sardo A *et al.* (2014): Video assisted ablation of pilonidal sinus: a new minimally invasive treatment: a pilot study. *Surgery*, 155(3):562-6.
12. Bascom J (1993): Pilonidal disease: long term results of follicle removal. *Disease of Colon & Rectum*, 52: 15-23.
13. Gips M, Melki Y, Salem L *et al.* (2008): Minimal surgery for pilonidal disease using trephines: description of a new technique and long-term outcomes in 1,358 patients. *Dis Colon Rectum*, 51(11): 1656-62.
14. Turkyilmaz Z, Karabulut R, Oral H *et al.* (2020): The Gips Procedure for Pilonidal Disease: A Retrospective Review of Adolescent Patients. *Cutis*, 106(05):261-264.
15. Segre D, Pozzo M, Perinotti R *et al.* (2015): The treatment of pilonidal disease: guidelines of the Italian Society of Colorectal Surgery (SICCR). *Tech Coloproctol.*, 19: 607-13.
16. Elshazly W, Said K (2012): clinical trial comparing excision and primary closure with modified limberg flap in treatment of uncomplicated sacrococcygeal pilonidal disease. *Alexandria Journal of Medicine*, 48: 13-18.
17. Velotti N, Manigrasso M, Di Lauro K *et al.* (2019): Minimally invasive pilonidal sinus treatment: A narrative review. *Open Med (Wars)*, 14: 532-536.