

Manuscript ID ZUMJ-2101-2084 (R1)  
DOI 10.21608/ZUMJ.2021.58014.2084

## ORIGINAL ARTICLE

# Limited Subcutaneous Secondary Sinuses Excision in Complex Pilonidal Sinus Disease.

Mohammed Algazar<sup>1</sup>, Mohamed Negm<sup>1</sup>, Tamer R. Alalfy<sup>1</sup>

*1General Surgery Department, Faculty of Medicine, Zagazig University, Zagazig, Egypt*

### Corresponding author

Mohammed Algazar  
General Surgery  
Faculty of Medicine, Zagazig  
University, Egypt

### E-mail:

[drmohammedezat4@gmail.com](mailto:drmohammedezat4@gmail.com)

Submit Date 2021-01-13

Revise Date 2021-02-21

Accept Date 2021-03-15

### ABSTRACT

**Background:** Pilonidal sinus disease (PSD) is a simple chronic inflammatory condition. Many surgical procedures used to treat pilonidal disease. In this study we represent a case series for treating complex PSD by Subcutaneous Sinusectomy and cystectomy.

**Methods:** Thirty five patients with complex PSD according Tezel classification were enrolled in the study. Marking of eccentric openings then an elliptical incision was done 1 cm from midline with 0.5 cm depth, all cases has a lateral remote openings from the midline we start dissection around the opening itself by a narrow ellipse then the side tracks palpated and we started subcutaneous dissection of the track then randveau dissection from the main midline wound to meet each other to extract the side track as one peace with main cyst.

**Results:** the studied group was 35 patients, 28 (80%) were males, 7 (20%) were females the mean age was  $26 \pm 5.44$  years with range 18-43 years. The mean operative time was  $25.71 \pm 5.21$  minutes with range 20-45 minutes, while the hospital stay was  $28 \pm 5.32$  hours with range 24-36 hours Recurrence occurred in 2 patients 5.71%. Primary non healing was the most common complication 5.71%.

**Conclusions:** Subcutaneous Sinusectomy and cystectomy is a feasible and accepted option for management of complex PSD with a fair recurrence rate, short hospital stay and early return to work.

**Key words:** Pilonidal sinus ; Pilonidal sinus disease ; Sinusectomy ; complex Pilonidal sinus



### INTRODUCTION

Pilonidal sinus disease (PSD) is a simple chronic inflammatory condition resulting from loose hairs forcibly inserted into vulnerable tissue in the natal cleft. It is an acquired disease with a slight familial tendency[1].

Many surgical procedures used to treat pilonidal disease including primary excision with lay open, Primary excision with median closure, Primary excision with asymmetrical closure, flap procedures. with variable outcomes especially in recurrence rate [2].

Our study is concerned about complex pilonidal disease (type IV and V according to Tezel classification (Table 1)[3] with eccentric openings away from midline which leave large and deep wound disabling patients for several weeks [4]

The aim of this case series is to evaluate the outcome of cystectomy and subcutaneous sinusectomy the method innovated by Soll and his Colleagues[5] under the slogan "less is more". Our primary outcome was the recurrence of PSD within

the follow up period, The secondary outcome was the postoperative complications.

### METHODS

This prospective case series was conducted over a period of 24 months from May 2018 to April 2020, after approval by the research ethical committee. Thrity five patients enrolled in the study with Complex PSD which is defined as type IV, V PSD according to Tezel classification.

Type IV Tezel means extensive disease where one or more sinus opening lies outside the navicular area. The navicular area defines the extent of the natal cleft described by its lateral edges and posterior extent. Such patients usually have a history of multiple abscess formation and drainages without definitive pilonidal surgery.<sup>3</sup>

Type V Tezel means recurrent pilonidal sinus following any surgical treatment.

Simple PSD (I,II,III Tezel classification) and Infected cases were excluded from the study.

Written informed consent was obtained from all participants. The study was done according to The

Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

After obtaining informed consent from the participating

patients, 1 g ceftriaxone is given within one hour from the procedure. Preoperative clipping of the hair was done. Spinal anesthesia was adopted in most of the cases, according to patient preference.

During the operation, the patient was placed in the prone position with the pelvis elevated with a pillow. An adhesive tape was used to strap the buttocks apart for proper exposure of the sinus area. prepping and draping of the operative area was done .

Identification and marking of the eccentric openings and tracts (figure 1) Injection of methylene blue in the all tracks then an elliptical incision was done 1 cm from midline with 0.5 cm depth , all cases has a lateral remote openings from the midline we start dissection around the opening itself by a narrow ellipse then the side tracks palpated and we started subcutaneous dissection of the track then randveau dissection from the main midline wound to meet each other to extract the side track as one peace with main cyst (figure 2), then closure of main wound in 3 layers over a drain and simple closure of the lateral openings figure (3)

**Follow up:**

The patients were followed up in the outpatient clinic by regular visits at one, three and six months for all patients which is the minimum follow up period. After six months the patients were followed up by telephone call , at which we asked about symptoms of recurrence , any patients complained from recurrence symptoms was asked to visit the out patient clinic.

**STATISTICAL ANALYSIS**

Data collected throughout history, basic clinical examination, operative data and outcome measures coded entered and analyzed using Microsoft Excel software. Data were then imported into Statistical Package for the Social Sciences (SPSS version

**Table 1:** Tezel classification [3]

<b>Type I:</b> Asymptomatic pit(s) without a history of abscess and/or drainage.
<b>Type II:</b> Acute pilonidal abscess.
<b>Type III:</b> Pit(s) within the navicular area with a history of abscess and/or previous drainage.
<b>Type IV:</b> Extensive disease where one or more sinus opening lies outside the navicular area.
<b>Type V:</b> Recurrent pilonidal sinus following any surgical treatment.

**Table 2:** basic demographic and clinical data distribution

	Mean ±SD	Range
<b>Total number of patients = 35</b>		
<b>Age (years)</b>	<b>26±5.44</b>	<b>18-43</b>
<b>Symptoms duration (months)</b>	<b>17.74±7.18</b>	<b>12-48</b>

20.0) software for analysis. According to the type of data qualitative represent as number and percentage, quantitative continues group represent by mean ± SD and range.

To Avoid bias in results the the data was coded and analyzed by a third person who didn't share in the operative procedures

**RESULTS**

The studied group was 35 patients , 28 (80%) were males , 7 (20%) were females the mean age was 26±5.44 years with range 18-43 years. Five patients (14.29%) were smokers; four patients (11.57%) were diabetic and one patient (2.86%) was hypertensive, as shown in (Table 2).

The PSD were primary in 22 patients (62.86%) and were recurrent in 13 (37.14%). All were IV & V Tezel classification with majority of patients (48.57%) had one eccentric opening (Figure 1), 37.14% of the patients had 2 eccentric openings , 11.43% of the patients had 3 eccentric openings and only one patient (2.86% ) had 4 eccentric openings .

The distance of the eccentric opening from the navicular area as variable but the mean distance was 20.36±7.31 mm the range was 29-12 mm

The mean operative time was 25.71 ±5.21 minutes with range 20-45 minutes, while the hospital stay was 28±5.32 hours with range 24-36 hours as shown in (Table 3).

Table (4) shows the postoperative outcome of the studied group, our primary outcome was the recurrence of PSD within the follow up period which range between 24-6 months with mean 13.05±6.94 months. The recurrence rate was 5.71 % , two cases from 35 cases. The secondary outcome was the postoperative complications which had a rate of 4 / 35 cases (11. 43%). The most common complication was primary non healing of the wound 2/35 cases (5.71%), these complications prolonged the time before returning to work which ranged between 8-45 days with mean 14.74±6.7 days in all cases

		Mean ±SD	Range
Sex	Male	N	28
		%	80
	Female	N	7
		%	20%
Co morbidities	No	N	25
		%	71.42%
	DM	N	4
		%	11.57%
	HTN	N	1
		%	2.86%
	Smoking	N	5
		%	14.29%
No of Eccentric openings	1.00	N	17
		%	48.57%
	2.00	N	13
		%	37.14%
	3.00	N	4
		%	11.43%
	4.00	N	1
		%	2.86%
Primary or Recurrent	Primary	N	22
		%	62.86%
	recurrent	N	13
		%	37.14%
max site of the openings from midline (mm)		20.36±7.31	29-12

**Table 3:** operation time and hospital stay distribution

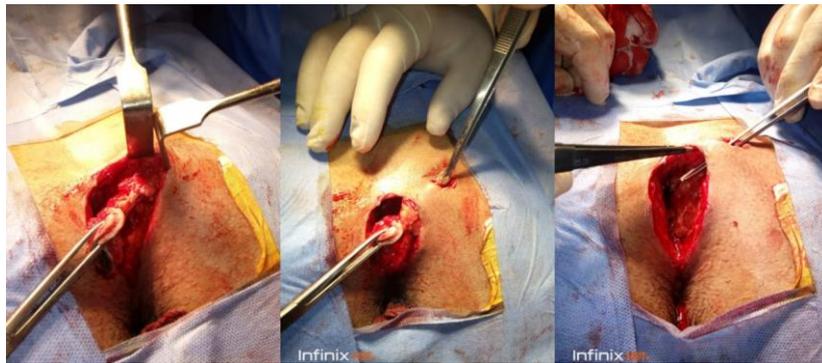
	Mean ±SD	Range
Operative time by (min)	25.71 ±5.21	(20-45)
Hospital stay (hours)	28±5.32	24-36

**Table 4:** Outcome distribution

Total number of patients = 35			Mean ±SD	Range
Follow up (months)			13.05±6.94	24-6
Wound healing time			25.7±8.33	15-35
Recurrence	-VE	N	33	
		%	94.29%	
	+VE	N	2	
		%	5.71 %	
Complication	NO	N	31	
		%	88.57 %	
	Infection	N	1	
		%	2.86%	
	Non healing	N	2	
		%	5.71%	
	Collection (s-seroma)	N	1	
		%	2.86%	
Overall complication	No	N	31	
		%	88.57 %	
	Yes	N	4	
		%	11.43%	
Return to work (days)			14.74±6.7	8-45



**Figure (1):** Identification and marking of the eccentric openings and tracts.



**Figure (2):** Identification and marking of the eccentric openings and tracts.



**Figure (3):** final appearance and closure



**Figure (4) :** specimen after extraction

#### **DISCUSSION**

Pilonidal sinus ideal treatment should have a low recurrence rate and a short time for work returning, as this disease affects mainly young patients. [4,5,6]

The idea of less radical treatment PDS is not new and returning to the Second World War. The high incidence of PDS among U.S.A soldiers had led to the cognomen “Jeep disease.”[8]

Marsupialization was suggested by Phillips [9] a less invasive method for infected PSD “to keep the fighting man in a fit condition for combat.” [8,9] In 1980, Bascom [10,11] reported individual excision of midline openings and added a laterally-placed parallel incision to better explore and clean the pilonidal cavity and to facilitate identification of diseased follicles. Bascom also sutured midline operative wounds and excised lateral tracts. This study shows that sinusectomy for complex pilonidal sinus has good short-term results with 5.71 % recurrences at 13.05 months follow up.

Sinusectomy in this study showed low recurrence rate in the follow up period with only two cases (5.71 %), this is in range of recurrence rate in Stauffer et al<sup>(2)</sup> meta-analysis of recurrence rate for different methods for management of PSD which ranged between 1-14 % with Limberg and Dufourmentel flaps lowest recurrence rate 0.6 % and 1.8% at 12 and 24 months respectively. [12]

Gips and his Colleagues [12] in 2008 published their new trephine technique which is near our study technique but the utilized trephines to excise pilonidal pits, their study included large number of patients 1,435 patients and long term follow up for 10 years. Recurrence rates after 1 year was 6.5 percent which is near the rate of recurrence in our study.

Soll and his Colleagues [5] reported overall recurrence rate of 7 percent which also near our results.

Recurrences in this study were treated with radical excision and a reconstructive cutaneous flap (Limberg's flap) because as aforementioned it has a low recurrence rate.

Short hospital stay is another advantage of the this technique, most of the patients could be treated by 1-day surgery, which allowed a rapid return to full activity within short period of time, as returning to work mean time was  $14.74 \pm 6.7$  days, with most of the patients return to work after 8 days.

Early work returning is attributed to rapid wound healing. The mean time of wound healing in non-complicated cases was  $25.7 \pm 8.33$  days, which is shorter than healing time in cases of endoscopic pilonidal sinus treatment (EPSiT) which was 41 (31–77) days in Romaniszyn et al study but it is longer than the time of Limberg group which was 21 (10–24) days in the same study [13].

Primary non wound healing was the most common postoperative complication which occurred in 2 cases (5.71%) in our study. The two patients needed using a vacuum assisted therapy for management of the wound which increases the healing time and delayed returning to work.

Surgical site infection (SSI) is one of the most frequent complications of surgical procedures,

with the potential risk for adverse outcomes [14]. one case (2.86%) in our study developed SSI. Soll and his Colleagues [5] reported 7 cases (2.72 %) of SSI.

#### LIMITATIONS:

The limitations of this study is that it is not a comparative study, which weaken the results. short term follow up and small sample size are also drawbacks, so we recommend a randomized controlled trial to compare between this technique and other standard method for management of PSD with large number of patients and long term follow up.

#### CONCLUSION:

Subcutaneous Sinusectomy and cystectomy is a feasible and accepted option for management of complex PSD with a fair recurrence rate, short hospital stay and early return to work.

#### REFERENCES

- 1- Beal EM, Lee MJ, Hind D, Wysocki AP, Yang F, Brown SR. A systematic review of classification systems for pilonidal sinus. *Tech Coloproctol.* 2019 ;23(5):435-443.
- 2- Stauffer, V. K., Luedi, M. M., Kauf, P., et al: Common surgical procedures in pilonidal sinus disease: A meta-analysis, merged data analysis, and comprehensive study on recurrence. *Scientific Reports*, 2018;8(1).
- 3- Tezel E A new classification according to navicular area concept for sacrococcygeal pilonidal disease. *Colorectal Dis.*, 2007;9(6):575–6.
- 4- McCallum IJ, King PM, Bruce J. Healing by primary closure versus open healing after surgery for pilonidal sinus: Systematic review and meta-analysis. *BMJ*, 2008; 336:868-871.
- 5- Soll, C., Dindo, D., Steinemann, D., Hauffe, T., Clavien, P.-A., & Hahnloser, D. : Sinusectomy for primary pilonidal sinus: Less is more. *Surgery*, 2011;150(5):996–1001.
- 6- Humphries AE, Duncan JE. :Evaluation and management of pilonidal disease. *Surg Clin North Am*, 2010;90:113-124.
- 7- Chintapatla S, Safarani N, Kumar S, Haboubi N. Sacrococcygeal pilonidal sinus: historical review, pathological insight and surgical options. *Tech Coloproctol*, 2003; 7:3-8.
- 8- Buie LA, Curtiss RK. :Pilonidal disease. *Surg Clin North Am* 1952;1247-1259.

- 9- Phillips CW.: Pilonidal disease in a military hospital. *J Natl Med Assoc*, 1954;46:329-32.
- 10- Bascom J. Pilonidal disease: long-term results of follicle removal. *Dis Colon Rectum*, 1983;26:800-7.
- 11- Bascom J. Pilonidal disease: origin from follicles of hairs and results of follicle removal as treatment. *Surgery*, 1980; 87:567-72.
- 12- Gips, M., Melki, Y., Salem, L., Weil, R., & Sulkes, J. : Minimal surgery for pilonidal disease using trephines: description of a new technique and long-term outcomes in 1,358 Patients. *Diseases of the Colon & Rectum*, 2008;51(11): 1656–1663.
- 13- Romaniszyn M, Swirta JS, Walega PJ. Long-term results of endoscopic pilonidal sinus treatment vs Limberg flap for treatment of difficult cases of complicated pilonidal disease: a prospective, nonrandomized study. *Colorectal Dis.*, 2020;22(3):319-324.
- 14- Algazar M., Abdelhamid M., Abd Elaziz O. Microbiology of surgical site infection after emergency colorectal surgery. *Surg Chron*, 2020;25(2): 115-118.

### How to cite

Algazar, M., negm, M., Elalfy, T. Limited subcatenous secondary sinuses excision in complex pilonidal sinus disease.. *Zagazig University Medical Journal*, 2024; (107-112): -. doi: 10.21608/zumj.2021.58014.2084