

## Original paper

# Marsupialization after Undermining Excision and Flap-Like Margin Creation vs. (Marsupialization Only) or (Excision and Laying Open) Treatments for Pilonidal Sinus (PNS)

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## Abstract

**Background:** Pilonidal disease treatment should be minimal, minimal pain, short hospitalization, low recurrence rate, minimal wound care, and allow rapid return to normal activity. Unfortunately, no treatment meets all these ideal goals.

**Aim:** This study is conducted to find out a modality treatment for PNS that can achieve the above goals.

**Methodology:** It is a retro and prospective study of 51 patients presented with PNS.

All were divided randomly into 3 groups; First group treated by excision of the sinuses and laid the wound open. Second group treated by excision and marsupialization and third group treated by excision of skin containing sinuses' openings only and further undermined (beneath the skin) resection of the infected tissues with flap forming with marsupialization of flap margins to the sacral fascia .

**Results:** *Healing time;* Third group healed earlier.

*Post-operative painkillers;* Third group needed less painkillers for shorter time.

*Return to daily activities;* Third group return to their jobs and life activities earlier.

*Infection:* Third group had only one case of cellulitis.

*Recurrent PNS;* zero patient from third group had recurrent cellulitis.

**Discussion:** Third group modality will reduce the tension on sutures and reduce the postoperative pain, and loosening sutures, also further reduces the recurrence rate.

**Conclusion:** Third group modality yields a promising results in term of reducing the healing time, post-operative pain, recurrence of PNS and infection rates.

It could be widely adopted, and would be largely cost-effective modality, as it will reduce the expenses of caring for wound, antibiotics use, painkiller use and the early return to the job.

**Keywords:** Pilonidal, marsupialization, Recurrence.

## Introduction

Pilonidal disease was first noticed in 1833, Mayo first one to describe a hair-containing cavity located just below the coccyx. Hodge used the term "pilonidal" from its Latin origins. Pilonidal disease is a disease of young people, usually men, which can result in an abscess, draining sinus tracts, and moderate debility for some. It probably results from hair

penetration beneath the skin, for reasons that are not clear yet. Intervention should be minimal, minimal pain, short hospitalization, low recurrence rate, minimal wound care, and allow rapid return to normal activity. Unfortunately, no treatment meets all these ideal goals. Therefore, starting with a simple treatment and progressing to other treatments if failure occurs despite meticulous wound care and hair shaving is the logical approach. <sup>(1)</sup>

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The majority of authors conclude that sacro-coccygeal pilonidal cyst is an acquired disease, although a minority believe it is congenital <sup>(2,3)</sup>.

Predisposing factors to pilonidal disease are believed to include the following:

Obesity; Sedentary lifestyle or occupation; Deep natal cleft; Family history of pilonidal disease; Hirsutism; Deep natal cleft. <sup>(4)</sup>:

Incidence are increased with sweating activity associated with sitting <sup>(5)</sup> and buttock friction, poor personal hygiene.

*Differential Diagnoses include;* Anal Fistulas and abscess; Hidradenitis Suppurativa; STDs; Tuberculosis.

In 90% of cases, the direction of the sinus tract is cephalad, which coincides with the directional growth of the hair follicle. This usually places the tracking follicle approximately 5-8 cm from the anus. In the rarer instance that the sinus is located caudally, it is usually located 4-5 cm from the anus. The caudal location of the sinus can be easily mistaken for a fistula in ano. <sup>(6)</sup>

The ideal treatment for a pilonidal sinus varies according to the clinical presentation of the disease. First, it is important to divide pilonidal disease into the following three categories, which represent different stages of the clinical course:

Acute pilonidal abscess; chronic pilonidal disease; Complex or recurrent pilonidal disease.

Surgical management should be determined by the classification category. Although there are several treatment options for pilonidal disease in each category, they all have similar goals <sup>(7)</sup>.

### ***Aim of the study***

This study is conducted to find out which PNS treatment modality that can achieve the goals, like minimal pain, low recurrence rate, low rate of post-operative

infection, and allow rapid return to normal activity.

### **Methodology**

This a combined retro and prospective study of 51 patients presented with chronic, infected pilonidal without setting exclusion or inclusion criteria for participants. Their ages ranging from 17 to 56 years. Thirty-seven were males and 14 were females.

They were divided into 3 groups according to their modality of surgical intervention; some of these operations were done at the clinic setting and local anesthesia.

First group includes 28 patients who treated by excision of the sinuses and laid the wound open and to be closed by secondary intention.

Second group includes 13 patients were treated by excision and marsupialization of the wound margins to the sacral fascia only.

Third group includes 10 patients were treated by excision of skin containing sinuses' openings only and further undermined (beneath the skin) resection of the infected tissues with flap forming with marsupialization of flap margins to the sacral fascia.

All were followed up for about 6 months with daily dressing by wet and dry gauze and shaving the area.

### **Results**

#### **Regarding healing time**

First group was found to heal completely in a period ranging from 2.5-3 months, while the second group healed completely within 1.5 -2 months, and third group healed in less than 1 month.

All patients in the second group had detachment of the marsupialization sutures in 2-3 weeks post-operatively and they were considered, like if belong to the first group.

Third group had kept their sutures of marsupialization to the end of the healing

process, which took 2-4 weeks, except two patients were, their sutures detached partially. As it is shown in the table (1).

#### **Regarding the post-operative pain;**

First group needed more painkiller and for longer time (Ibuprofen 200 mg + co codamol BID for 3 weeks).

Second group needed more aggressive painkillers (Ibuprofen 400mg + Cocodamol TID for 2 weeks) for less time (2 weeks until their sutures detached).

Third group needed less painkillers for shorter time (Ibuprofen 200mg + Cocodamol QD to BID for 3-5 days only). As it is shown in table (2).

#### **Regarding resuming daily activities;**

First and Second groups avoided full daily life activities for up to 2 weeks.

Third group return to their jobs and life activities and become functioning peoples in one week, as it is shown in the below table.

#### **Regarding recurrent infection**

First group had seven patient developed post-operative cellulitis and discharge; second group had four patient needed extended antibiotics for recurrent cellulitis. While third group had only one case, got cellulitis treated fast by antibiotics.

#### **Regarding recurrent PNS**

For first group 5 patient had got recurrent PNS, while two patient from the second group had recurrent PNS with zero patient from third group got recurrent PNS.

#### **Discussion**

Marsupialization is the surgical method of choice, as it had a low percentage of recurrence and an acceptably short healing period <sup>(8)</sup>. It should be noted that selecting marsupialization as a treatment method presupposes the absence of inflammation and that the case is not a recurrence, <sup>(9)</sup>

The benefit of marsupialization of PNS is to reduce the depth of the wound, which in turn reduce the time of healing and reduce the rate of recurrence and infection, because it will leave thin skin and subcutaneous tissues overlying the scar. Disadvantage of marsupialization is the pain accompanying tension sutures, and early loosening then detachment of the tension sutures, which eventually convert the marsupialization PNS to the excision and laying open PNS with its adverse consequences. Although laying the sinus open permits adequate drainage and has lower recurrence, but the healing requires more time. <sup>(10)</sup>

**Table 1.** shows the healing time for each modality of surgical intervention

Oper	2 weeks	4 weeks	6 weeks	8 weeks	10 weeks	12weeks	Total
1 <sup>st</sup> Gr	Nil	Nil	Nil	05(17.8%)	10(35.7%)	13(46.4%)	28
2 <sup>nd</sup> Gr	Nil	Nil	Nil	05(38.4%)	04(30.7%)	04(30.7%)	13
3 <sup>rd</sup> Gr	05(50%)	05(50%)	Nil	Nil	Nil	Nil	10

**Table 2.** shows the duration of painkillers use.

Operation	1 week	2 weeks	3 weeks
1 <sup>st</sup> Group	28 patients (100%)	21 patients (75%)	11 patients (29.2%)
2 <sup>nd</sup> Group	13 patients (100%)	12 patients (92.3%)	06 patients (46.1%)
3 <sup>rd</sup> Group	10 patients (100%)	Nil	Nil

**Table 3.** shows resuming daily life activities after surgery.

Operation	1 week	2 weeks	Total
1 <sup>st</sup> Group	08(28.5%)	20(71.4%)	28 patients
2 <sup>nd</sup> Group	04(30.7%)	09(69.2%)	13 patients
3 <sup>rd</sup> Group	10(100%)	-	10 patients

Undermining and excision of the PNS tracts and reproducing flaps- like margins will hugely reduce the tension on sutures and hence, reduce the postoperative pain, and loosening and detachment of the tension sutures, also further reduces the recurrence rate, because it removes more tissue's bulk and produce thin scar overlying the sacrum, thence removes almost all PNS tracts. Such advantages would speed healing time, reduce the rate of infection and promote early resuming daily activities by the patients. There is no clear criteria for selecting the treatment modality of different PNSs <sup>(11)</sup>, therefore the three above modalities could be used for all.

In apparently large, inflamed and recurrent situations, we should prefer the Open Excision, where the healing time is longer but the percentage of success is greater. <sup>(12)</sup>

However, our study has shown even with large and recurrent PNSs the result was promising, and our modality could be even done under local anesthesia.

## Conclusion

Undermining excision of PNS tracts and creating flap-like margins is easily achieved modality for treating the chronic PNS, which yield good and promising results in term of reducing the healing time, post-operative pain, recurrence of PNS and infection rates.

Such modality could be widely adopted, and would be largely cost-effective modality, as it will reduce the expenses of caring for wound, antibiotics use,

painkiller use and the early return to the job.

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