



ORIGINAL ARTICLE

## Comparison of treatment of pilonidal sinus using phenol injection versus wide excision with secondary healing.

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**ABSTRACT... Objective:** To compare mean early post-operative pain and frequency of wound healing of pilonidal sinus using application of crystallized phenol versus wide excision with open healing. **Study Design:** Randomized Controlled Trial. **Setting:** Department of Surgical, Allied Hospital Faisalabad. **Period:** 13-10-2018 to 12-04-2019. **Material & Methods:** A total of 60 patients were operated in our unit during the study period and were allocated into two groups randomly: Group A and Group B. The patients in Group A underwent treatment using crystallized phenol. Patients in Group B underwent wide local excision of the pilonidal sinus tract. All patients were given single dose of broad-spectrum antibiotic at time of procedure. Analgesia in post-operative period was maintained by using Diclofenac Sodium (Inj Artifen 75mg/3ml IM) as requested by the patient as long as the safe dose is not exceeded. First assessment of all patients was done at 24 hours after surgery. The analgesic requirement and visual analog scale score were documented for patients of both groups at this time. Follow up visit for patients in both groups was scheduled at 3 weeks after treatment. All the data was collected with the help of a specially designed Performa. **Results:** Mean pain score in Group-A was calculated as  $1.36 \pm 0.55$  and in Group-B it was  $3.23 \pm 0.82$ , p value was 0.0001, comparison of wound healing in both groups shows that wound healing in Group-A was in 80% (n=24) and in Group-B, it was 30% (n=9), p value was 0.0001. **Conclusion:** We concluded that mean early post-operative pain and frequency of wound healing of pilonidal sinus using application of crystallized phenol is significantly lower when compared with wide excision with open healing.

**Key words:** Crystallized Phenol, Early Post-operative Pain, Management, Pilonidal Sinus, Wide Excision, Wound Healing.

### INTRODUCTION

Pilonidal sinus is a chronic, infectious and inflammatory disease predominantly seen in the sacrococcygeal region.<sup>1-3</sup> It manifests as chronically discharging sinus in the natal cleft often associated with moderate to severe pain.<sup>4</sup> It is largely considered to be an acquired disease having close association with a patient's body hair distribution and profession.<sup>5</sup> The disease most commonly affects young adults with males.<sup>5</sup>

Various different treatment options can be offered to patients with pilonidal sinus.<sup>6</sup> These include wide excision with primary closure or secondary healing, marsupialization, Karydakis, or other flap procedure.<sup>1,4</sup> An ideal treatment should be easy,

with minimal overall morbidity and less post-operative pain, short hospital stay, early wound healing, and small chances of recurrence or other complications.<sup>6</sup> Unfortunately, all the treatment options fall short of these standards in one aspect or another resulting in the fact that there is still no standard treatment for this pathology.<sup>1</sup>

Traditionally track excision with primary closure or secondary healing was favored by surgeons.<sup>1</sup> However, this method led to prolonged healing time or complications like infection or recurrence.<sup>1</sup>

Gradually the trend shifted towards flap procedures like Karydakis or Limbergs.<sup>4</sup> These had the advantage of reduced recurrence due to

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obliteration of the depression of the natal cleft.<sup>5</sup> But infection and recurrence were also a concern for surgeons employing these procedures.<sup>4</sup> Recently, with less invasive treatment options gaining fame in all aspects of surgery the treatment of pilonidal sinus using phenol is becoming common.<sup>4</sup> Phenol is an acidic chemical that has antiseptic, analgesic, and sclerosing properties.<sup>5</sup> It is available in crystalline form which melts at normal body temperature.<sup>6</sup> As mentioned by Calikoglu et al<sup>1</sup>, the success rate of a single application of crystallized phenol ranges between 60% to 100%. Phenol injection can be performed under local anesthesia in outdoor settings with results comparable to any other form of surgical treatment.<sup>6</sup> It has the added advantage of less post-operative pain<sup>6</sup> and reduced chances of infection in comparison to flap procedures<sup>4-5</sup>; and early healing of wound in comparison to procedures involving primary excision and secondary healing.<sup>1</sup> Mean post-operative pain after 24 hr in patients treated with phenol is 1.2+ 1.5 as compared to patients treated with surgery is 3.7+2.1.<sup>1</sup> Frequency of wound healing in patients treated with phenol is 88.6% while patients treated with surgery is 11.4%.<sup>1</sup>

Pilonidal sinus has the potential to cause significant morbidity to the patient and reduces their quality of life.<sup>1</sup> Choice of an appropriate treatment option is often problematic.<sup>1</sup> An easy, quick, relatively less invasive treatment with favorable results like use of phenol is a welcome addition to the available treatment options from the perspective of both patient and surgeon.<sup>6</sup> As there are limited studies available internationally and no study available in our country, we will perform this study in our hospital and if we find it beneficial, we will introduce this modality to our fellow clinicians and highlight its advantages over the currently practiced methods.

## Operational Definition

### Early Postoperative Pain

- Pain within the first 24 hours after surgery is measured by visual analog scale (VAS).

### Wound Healing

Wound healing is assessed at 3 weeks by complete closure of wound opening, interruption of wound discharge, and disappearance of induration.

### Objective

The objective of the study was to compare mean early postoperative pain and frequency of wound healing of pilonidal sinus using an application of crystallized phenol versus wide excision with open healing.

## MATERIAL & METHODS

This Randomized Controlled Trial was conducted at Surgical Department, Allied Hospital Faisalabad from 13-10-2018 to 12-04-2019. By using WHO sample size calculator for 2 means, anticipated population mean 1.2<sup>1</sup>, test value of population means 3.7<sup>1</sup>, pooled standard deviation 1.82, Power of study 90%, level of significance 5%; anticipated population in study group 88.6%<sup>1</sup> and anticipated population in control group 11.4%.<sup>1</sup> Sample Size: 60 (30 in each group)

### Inclusion Criteria

Patients of both genders between the ages of 18 and 60 years diagnosed as having pilonidal sinus based on:

- history of discharging sinus in the natal cleft
- clinical examination demonstrating single/multiple sinuses

### Exclusion Criteria

- An acute pilonidal sinus abscess
- Patients with recurrent pilonidal sinus disease
- Pregnant or lactating females
- Immunosuppressive or coagulation disorders

After taking approval from hospital ethical review committee (852/2018), all the patients presenting in the outpatient department of Allied hospital with relevant complaints were assessed as likely candidates. The diagnosis was confirmed based on history and clinical examination.

Contact details including address and phone number were taken from each patient and recorded on individual patient's record proforma for documentation.

Each participant of the study was informed in detail regarding the study and the two proposed treatment modalities. Informed consent was taken from all patients and they were randomly allocated to either Group A or Group B.

The patients in Group A underwent treatment using crystallized phenol. After injecting local anesthesia into the surrounding skin, the sinus was dilated up to 3mm, and all the hair and debris were removed. After covering the surrounding skin with nitrofurazone cream, the dilated sinus was packed with crystallized phenol. The phenol crystals liquefy rapidly at room temperature. After leaving it in the sinus for about 2 minutes, the liquid phenol was removed afterwards wound was packed with sterile gauze for 24 hours.<sup>1</sup> Gauze was removed after 24hrs and the patient was discharged.

Patients in Group B underwent wide local excision of the pilonidal sinus tract. Under spinal anesthesia, an elliptical incision was given around the sinus track and its underlying cavity. Methylene blue was used to identify the track where in doubt. Tissue was excised up to fascia. After ensuring hemostasis, the wound was dressed with sterile gauze.<sup>1</sup> Group B patients were retained in the ward for minimum of 48 hours and discharged after first dressing.

All patients were given a single dose of broad-spectrum antibiotic at the time of the procedure. Analgesia in the post-operative period was maintained by using Diclofenac Sodium (Inj Artifen 75mg/3ml IM) as requested by the patient as long as the safe dose is not exceeded.

First assessment of all patients was done 24 hours after surgery. The analgesic requirement and visual analog scale score were documented for patients of both groups at this time. Follow up visit for patients in both groups was scheduled at 3 weeks after treatment.

Protocol proforma was attached with each chart and data about variables was entered. Statistical analysis was done using IBM SPSS Statistics Version 26.

## RESULTS

The total number of patients included in the study was 60. Mean Age in Group A was  $30.57 \pm 8.40$  years with 56.67% were between 18-30 years and 43.33% were between 41-60 years. While in Group B mean age was  $28.69 \pm 6.30$  years with 60% were between 18-30 years and 40% were between 41-60 years (Table-I).

In terms of gender, 76.67% (n=23) and 83.33% (n=25) were male in Group A and Group B respectively. (Table-II)

Mean pain score in Group-A was calculated as  $1.36 \pm 0.55$  and in Group-B it was  $3.23 \pm 0.82$ , the p-value was 0.0001. (Table-III)

Comparison of wound healing in both groups shows that wound healing in Group-A was 80% (n=24) and in Group-B, it was 30% (n=9), the p-value was 0.0001. (Table-IV).

Age (in years)	Group-A (n=30)	Group-B (n=30)
	No. of Patients (%)	No. of Patients (%)
18-30	17 (56.67%)	18 (60%)
41-60	13 (43.33%)	12 (40%)
Total	30 (100%)	30 (100%)
Mean+SD	30.57+8.40	28.9+6.30

Table-I. Age distribution (n=60)

Gender	Group-A (n=30)	Group-B (n=30)
	No. of Patients (%)	No. of Patients (%)
Male	23 (76.67%)	25 (83.33%)
Female	7 (23.33%)	5 (16.67%)
Total	30 (100%)	30 (100%)

Table-II. Gender distribution (n=60)

Pain on VAS	Group-A (n=30)		Group-B (n=30)	
	Mean	SD	Mean	SD
	1.36	0.55	3.23	0.82
P value	0.0001			

Table-III. Pain score (n=60)

Wound Healing	Group-A (n=30)	Group-B (n=30)
	No. of Patients (%)	No. of Patients (%)
Yes	24 (80%)	9 (30%)
No	6 (20%)	21 (70%)
P value	0.0001	

Table-IV. Wound healing in both groups (n=60)

## DISCUSSION

Pilonidal disease is a chronic discharging wound in the natal cleft. The estimated incidence is 26 per 100,000 persons, with the majority of cases being men between the ages of 20 and 30. Although various surgical techniques have been offered, there has yet to be a clear consensus on the best therapy.

In our study, mean pain score in Group-A was calculated as  $1.36 \pm 0.55$  and in Group-B it was  $3.23 \pm 0.82$ , p-value was 0.0001. Comparison of wound healing in both groups shows that wound healing in Group-A was in 80% (n=24) and in Group-B, it was 30% (n=9), p-value was 0.0001.

According to Calikoglu et al<sup>1</sup>, the success rate of a single application of crystallized phenol ranges between 60% to 100%. Phenol injection can be performed under local anesthesia in outdoor settings with results comparable to any other form of surgical treatment.<sup>6</sup> It has the added advantage of less post-operative pain<sup>6</sup> and reduced chances of infection in comparison to flap procedures;<sup>4-5</sup> and early healing of wound in comparison to procedures involving primary excision and secondary healing.<sup>1</sup> Mean postoperative pain after 24 hr in patients treated with phenol is  $1.2 \pm 1.5$  as compared to patients treated with surgery is  $3.7 \pm 2.1$ .<sup>1</sup> Frequency of wound healing in patients treated with phenol is 88.6% while patients treated with surgery is 11.4%.<sup>1</sup> The findings of our study match with the above author.

Ömer Topuz and others compared the phenol treatment with surgical excision plus primary closure technique in terms of life quality using a life quality questionnaire. They recorded no difference between the groups in age and sex like our findings however there were substantial changes in terms of quality of life in favor of the phenol group, except total healing time.<sup>7</sup> In terms of time off work, perioperative discomfort, and time away from school and social life, they found that phenol therapy is superior to the other treatment options for pilonidal illness as a first-line treatment. Furthermore, phenol treatment can be carried out without the need for a pre-treatment laboratory evaluation.

Another study, Dođru et al<sup>8</sup> published research on recurrent pilonidal illness, claiming that crystalline phenol application is a simple and affordable nonoperative technique that may be performed as an outpatient procedure and has a low recurrence rate. According to Doru et al, the success rate of crystalline phenol application is 95 percent.<sup>9</sup> The use of crystalline phenol as first-line therapy for any kind of pilonidal sinus was proposed in this study.

Another minimum surgical therapy for pilonidal illness was described by Gips et al. Trephines were utilized to remove sinus tracts, as well as a bone curette and hydrogen peroxide for cleansing and debridement.<sup>10</sup> Phenol application is less invasive than this procedure since no tissue excision or cavity debridement with a curette is required, as crystalline phenol does it chemically.

The findings of our study justify the hypothesis that “patients of pilonidal sinus treated by injection of crystallized phenol experience less pain and heal faster than those undergoing wide excision of sinus tract followed by open healing”. However, by introducing this modality to our fellow clinicians and highlight its advantages over the currently practiced methods may be beneficial.

## CONCLUSION

We concluded that mean early postoperative pain and frequency of wound healing of pilonidal sinus using an application of crystallized phenol is significantly lower in crystallized when compared with wide excision with open healing.







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