

# Minimally invasive management of pilonidal sinus disease by phenol intra-cavitary application: A single surgeon experience

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## Abstract

**Aim:** The objective of the present study is to share single surgeon's experience in management of pilonidal sinus disease by phenol application.

**Material and Methods:** Fifty-two patients, who were treated by phenol application for pilonidal sinus disease between September 2010 and August 2013, were analyzed retrospectively.

**Results:** During this period phenol application was performed in 52 patients due to pilonidal sinus disease. Phenol application was performed three times for each patient (1st, 2nd and 7th days). Forty-eight (92%) patients were male and 4 (8%) female with a mean age of 22 years (range: 16-38 y). The mean follow-up period of the patients was 11 months (range: 4-18 m). Three (5.7%) patients had a recurrence and the mean follow up period was 11 months.

**Conclusion:** Many surgical techniques are available in the treatment of pilonidal sinus disease. But all of them remain controversial due to recurrence and complication rates. Phenol treatment is easily applicable and has low costs with acceptable recurrence rates and provides rapid healing. For this reason, we suggest this non-invasive treatment in pilonidal sinus disease.

**Keywords:** Pilonidal sinus disease; phenol; minimally invasive; treatment experience.

## INTRODUCTION

Pilonidal sinus disease (PSD) is a chronic inflammatory and discharging wound in the gluteal area. Its incidence is 26 per 100,000 people (1). PSD commonly affects young patients, especially after at the age of 16-25 years and is three times more frequent in males (2) The surgical treatment of this disease should include certain features, such as short hospital stay, treatment by local anesthesia, poor complications, low recurrence rates and fast return to work with a good condition (3). Ideally, treatment modality should be easily applicable, have reduced duration of hospitalization, low recurrence rate, and reduced treatment site pain. Furthermore, treatment should provide early return to daily activities. Phenol application is one of the minimally invasive treatment alternatives for PSD and the surgeons are not very familiar with the technique. It is simple because it can be applied with local anesthesia without the need for operating room facilities. Furthermore, it has been shown to be cost-effective in various studies (4).

The objective of present study is to evaluate the efficacy of phenol application (three times application) in the management of PSD.

## MATERIAL and METHODS

Fifty-two patients diagnosed with PSD and treated by phenol application, at Ispir State Hospital, Erzurum/ Turkey and Malatya State Hospital, Malatya/ Turkey, from September 2010 to August 2013 were retrospectively analyzed. The same surgeon treated all patients with standard surgical technique in two different hospitals. Age, gender, number of sinus openings, localization of sinus orifices, operation time, recurrences, complications, phenol type and success of therapy were analyzed

**Details of the Technique:** The operation was performed in the prone or jack knife position. Body hair was removed just before the operation, and an antiseptic solution was applied to the skin. Anesthetic was applied in the subcutaneous skin around the orifices using 2% lidocaine

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solution mixed with adrenalin. All sinus orifices were dilated by a clamp. Hair, debris and granulation tissue were removed from the sinus. Skin was protected with nitrofurantoin ointment from irritant effects of pure crystallized or liquid phenol. The crystallized phenol was applied into all sinus orifices by a clamp. Three to 5 g crystallized phenol was administered to each orifice. The liquid phenol (80% in concentration) was applied in to the cavity by a cotton swab that saturated with phenol. Both phenol types were left in place for two minutes. This application was performed 3 times for each patient (1st, 2nd and 3th days).

### Statistical Analysis

Continuous variables were expressed as median and range. Discrete variables are expressed as percentage of the patient population. Continuous and discrete variables were compared with Mann-Whitney U test and any p value <0.05 was considered as statistically significant. All statistical analyses were performed on Software Package for Social Sciences version 20 (SPSSv 20; IBM, USA).

## RESULTS

Crystallized or liquid phenol was applied in 52 patients in PSD. All cases were primary chronic PSD. All patients were operated under local anesthesia. Forty-eight (92%) patients were male and 4 (8%) were female. Median age was 21 (16-38) years. Median operation time was 25 minutes (20-35 min). Forty-five (86.5%) patients had midline sinus openings, and 7(13.5%) had midline and lateral sinuses. Thirty-seven (71.1%) patients had 1 to 4 sinus orifices and 15 (28.9%) had 5 to 8 sinus orifices. In 30 (57.6%) patients liquid and in 22 (28.9%) patients crystallized phenol was applied. There was no patient-specific factor in the selection of the phenol type. At the end of the 4-weeks follow-up, sinuses that completely closed and asymptomatic patients were considered as cure. The median follow-up period was 11.5 (4-18) months. The data of patients is summarized in Table 1.

**Table 1. Demographic data of the patients in the study group**

Age (years; median [range])	21 (16-38)
Gender (Female/Male)	48/4
Number of Sinus orifice (median [range])	3 (1-8)
Localization of the sinus orifice on the natal cleft (Median/Lateral)	45/7
Operative Time (minutes; Median [range])	25 (20-35)
Follow up Period (Months; Median [range])	11.5 (4-18)
Phenol Type (Liquid/ Crystal)	30/22

Three (5.7%) patients had a recurrence during a median 11.5 months of follow-up. The data of patients with recurrence disease is summarized in Table 2. All patients left the hospital and returned to daily activities following the procedure. All patients were allowed to take a bath 24 hours after the procedure. No complications such as abscess, hematoma, seroma or chemical irritation of the surrounding skin developed in any patient. After the third

day of procedure 49 (94.2%) patients did not have any pain and did not need any analgesics. Antibiotics were not used to any of the patients. All patients were recommended that they must take care in keeping the area clean and hairless with shaving or laser epilation.

Patient and operation related factors such as gender, age, operative time, follow up period, type of phenol used and number of sinus orifice did not affect the recurrence rates among the patients (Table 2).

**Table 2. The Effect of patient and operative variables on the recurrence rates in the present study**

	Recurrence		P Value
	Present (n=3)	Absent (49)	
Age (years; median [range])	22 (20-38)	21 (16-38)	0.45
Gender (Female/Male)	1/2	3/46	0.09
Phenol Type (Liquid/ Crystal)	2/1	28/21	0.79
Number of Sinus orifice (median [range])	3 (2-7)	3 (1-8)	0.19
Operative Time (minutes; Median [range])	20 (20-25)	25 (20-35)	0.12
Follow up Period (Months; Median [range])	14 (12-18)	11.25 (4-18)	0.06

All statistical analysis were performed with Mann-Whitney U Test

## DISCUSSION

The ideal therapy for PSD is expected to be easy to perform, painless, inexpensive and to promote early return to work with shorter healing period, and lower recurrence rates. Efficacy and choice of the treatment method is still controversial. As a result, there are many invasive and minimally invasive techniques for the treatment of pilonidal sinus, and one of which is phenol application (5). Phenol application to the sinus has been described half a century ago; currently it is being popularized and seems to be a promising therapy option. Phenol (C<sub>6</sub>H<sub>5</sub>OH) is an organic and mildly acid compound that has antiseptic, disinfectant, anesthetic and sclerosant properties. It can be used in liquid or crystal form with different concentrations (40–80%) (6). The technique requires dilatation of the sinus orifices and removal of the debris, hair and granulation tissue within the sinus prior to application of liquid or crystallized forms of phenol (7). Advantages of phenol application are lesser tissue defect, use of local anesthesia, shorter duration of hospitalization, immediate ambulation and return to daily activities and reduced costs. In this study, all phenol applications were performed under local anesthesia, no patient stayed at hospital and all patients returned their daily activity immediately after the procedure.

Another goal of the best treatment in PSD is low recurrence rate. In limited number of studies some authors have reported different recurrence rates in PSD following phenol applications. Kaymakcioglu et al. (8) have reported that 8.3% (12 of 143 patients) of the patients had recurred. Olmez et al. (9) have reported recurrence rates as 13.2%

(11 of 83 patients). Girgin et al. (10) have reported none of the 42 patients had recurred. Kayaalp et al. (11) reported a recurrence rate of 13.3% (4 of 30 patients) of the patients with phenol application had recurred. We defined cure as complete skin epithelization accompanied with symptomatic relief. In our study, success rate was 94.3% (49 of 52 patients). Three (5.7%) patients with recurrence disease were treated with phenol application again and full healing was achieved after reapplication of phenol in these patients. Repeated application of phenol at different time periods is the most important factor for low recurrence rate and successful outcomes. The success of phenol treatment increases with repeated applications (12). In this study phenol application was performed 3 times for each patient and we provided low recurrence and high healing rates.

The complications of the surgery for PSD are infections (30%), seromas, hematomas (3%), and wound dehiscence (6%) (13). The common complications of phenol application are abscesses, hematoma and cellulitis (14). Cellulitis usually occurs due to superficial skin burns. These burns are caused by phenol leakage from the sinus due to high-pressure application and poor isolation (15). The high-pressure application is more dangerous in liquid phenol. Therefore we use liquid phenol with cotton swabs, which is cost effective. After dipping the cotton tip into liquid phenol, we insert it into the cavity to apply it. Also we suggest the protection of the skin, anus with gauzes and ointments. In this study no complication developed in any patient during the procedure of follow-up.

## CONCLUSION

In conclusion, the ideal treatment for PSD should be easy and cost effective, should require short duration of hospitalization and have a low recurrence and complication rate. Pain should be minimal together with no requirement for wound care with a rapid return to daily activities. Phenol is a cheap and easily accessible chemical agent that can be used for treatment of pilonidal disease in out-patient clinics. In this study, by phenol application, all patients returned their normal daily activity immediately, no patient stayed at hospital, no patient had a complication and after the third day of application, 49 (94.2%) patients were free from pain and analgesics. The other important point in this study is the overall success rate being 49 of 52 (94.3%) patients. In summary, phenol treatment is a cost effective, simple, easy to use and accessible chemical agent that has low recurrence and complication rates. Therefore, we suggest phenol application as the first option in PSD.

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