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The Comparison of Crystallized Phenol With Lateral Flap Method in Treatment of Sinus Pilonidalis

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ABSTRACT

We aimed to evaluate our experience with crystallized phenol for the treatment of pilonidal sinus disease and to compare it with Karydakis method.

Patients who undergone surgery for the pilonidal sinus disease between January 2016 and September 2018 in our clinic have been evaluated prospectively. Patients' data including age, sex, follow-up time, complications and recurrence rates were recorded.

Patients' mean age were 21.5±7.9 and 24.4±7.4 in phenol and karydakis groups, respectively. Sex distribution were 35 males to 10 females in phenol group and 107 males to 19 females in karydakis group. No recurrences were observed in phenol group, while recurrences in 8 patients were noted in karydakis group. This difference was not statistically significant (p=0.11).

Crystilized phenol technique is easy applicable and comfortable method for pilonidal sinus disease treatment. It may have less recurrence rate when compared to karydakis method, but more studies are needed to definitely establish this.

Key Words: Pilonidal sinus, phenol, surgical flap, crystallized phenol, Karydakis method

Introduction

In 1833, Hebert Mayo defined a sinus with hair inside in the sacrococcygeal area in a case report. (1) First time in 1880 Hodges used name "pilo-nidal" which was derived from words "pilus" meaning hair and "nidus" meaning nest. (2)

Pilonidal disease is seen 3-4 fold more in males than in females. Though it may be seen between ages 15-35, it is generally seen between 17-25 years. It is seen quite rarely after 45 years age. (3,4) There is no standard treatment modality for pilonidal disease. Many surgical and conservative treatment methods were applied for this disease. (5) Amongs them, Cystotomy (6), Baskom method (7), sinus excision with primary closure (8,9,10), Karydakis operation (11), sinus excision with cutaneous graft (12), sinus excision with flap (13,14,15) methods have been applied as surgical treatment.

Among the conservative treatments, phenol application was first defined by Maurice and Greenwood in 1964 and 80% phenol was applied during the procedure. (16) Concerning crystallized phenol, Dogru et al. conducted a study in 2004 and reported the success rate as 95.1% for the treatment of this disease. (17) Dag et al. defined the recurrence rate as 2% with use of 80% phenol in an another study. (18)

Materials and Methods

Patients undergone operation for pilonidal sinus disease between January 2016 and September 2018 in Seyhan State Hospital General Surgery Department were evaluated prospectively. Totally 171 patients participated in the study. 126 patients had undergone sinus excision and lateral flap operation (Karydakis method), whereas 45 patients were treated by crystallized phenol. Each method was performed by different surgeon independent from each other.

Crystallized phenol application was done under local anesthesia. The identical technique was performed for each patient in phenol group (Fig 1). 2-5 ml of local anesthetic was injected 2-3 mm lateral to the sinus stoma (lidocaine HCl 20 mg ml^{-1}, epinephrine HCl 0.0125 mg ml^{-1}). Hairs inside the stoma were cleaned by mosquito clamp entering from the sinus stoma 2 minutes after the injection. The sinus pouch was deepithelized with surgical curette after firm evidence that there are no hair in it. Hemorrages seen during this period were stopped by short period of compressions. Nitrofurantoin or bacitracin with neomicine cream

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Fig. 1. Crystallized phenol application for pilonidal sinus disease treatment

was applied to the area around sinus stoma to protect it from the crystallized phenol impact. After this crystilized phenol was applied into the sinus with mosquito clamp. The procedure was completed after the crystallized phenol had been melted against body temperature. The patient was taken from the operation table after application of sponge with nitrofurantoin or bacitracin with neomicine cream to the operation area. The patients undergone this procedure were discharged at the same day and reobserved 20 days after. Closed sinuses were accepted cured (Picture II). The same procedure had been applied again for the wounds not closed. No movement restriction and rest were proposed for the discharged patients and they were provided to get back to their daily activities. No antibiotics were used pre or postoperatively.

Patients treated with Karydakis method had undergone spinal anesthesia. Sinus was excised with the lateral flap making up the midline during the operation. Negative pressure drainage was applied to the patients which was withdrawn in the first day postoperatively. Patients were discharged the second day postoperatively with the proposal for the polyclinic control after a week for the suture extraction. Cephazoline Na 1 gr was applied intravenously to the patients for

Fig. 2. Closed and cured pilonidal sinus, 20 days after crystallized phenol application

antibiotic prophylaxis continuing with sefuroxim axetil 500 mg orally. Rest and movement restriction were proposed for the patients. Thigh flexion and long step were movement restrictions proposed.

Patient data were collected and analyzed by spss 11.5 software. Fisher exact x^2 test was used for the comparison of recurrence rates.

Results

The gender distribution in phenol group was 35 males to 10 females, (Table 1). Mean age was 21.5±7.9 (min-max: 13-47). The gender distribution in karydakis group was 107 males to 19 females, (Table I). Mean age was 24.4±7.4 with the range 13-56. The follow-up time in phenol group was 17±5.14 (min-max: 9-27) months, while in karydakis group it was 17.8±6.2 (min-max: 9-30) months.

37 patients received phenol application one time, while 6 patients had 2 times and 2 patients 3 times, (Table 2).

Complications as seroma, hematoma, infection were not observed in phenol group, while the incidences of infection, seroma-hematoma and wound separation were 7.1% (9 patients), 5.5% (7 patients) and 3.1% (4 patients) respectively in karydakis group, (Table 3).

There were no recurrence in phenol group, while the recurrence was observed in 8 patients (6.35%) in karydakis group, (Table 4). This difference was not statistically significant (p=0.11).

Discussion

Pilonidal sinus disease is one of the natal diseases of sacrococcygeal area affecting the quality of life.

Table 1. Sex distribution of patients in phenol and karydakis groups

Patients	Karydakis group	Phenol group
Males	107	35
Females	19	10

Table 2. Crystallized phenol application times in phenol group

Number of crystallized phenol application (times)	Number of patients
1	37 (%82.2)
2	6 (%13.3)
3	2 (%4.4)

The disease is especially seen in young and males. (19) According to Sondenaa et al. the reason of recurrence is chronic inflammatory process. Wound healing is delayed because of the infection and this results in recurrence. (20)

Today there is no consensus about the treatment modality of this disease. The disease can recur in time after surgical intervention methods. (21) For that reason many researchers prefer more conservative methods for the treatment of this disease.

Although it is controversial, minimal invasive approach is becoming more common in the treatment of chronic pilonidal sinus disease. Supporters of minimal invasive intervention without operation notify that the pilonidal sinus disease regresses and disappear at 40th years age regardless of the treatment modality executed. Researchers supporting this method advocate controlling the disease rather than totally eliminating it and clinical treatment rather than surgical intervention in operating room.

It is quite difficult to treat chronic pilonidal sinus diseases with recurrences and multiple sinuses; these generally need wide excision and flap application. (22) Among non-surgical treatments there are alcohol, phenol and silver nitrate injection; whereas left open wound or marsupialization after cyctectomy, curettage after fistulotomy, Bascom operation, primary closure after excision, Karydakis technique, sinus excision with cutaneous graft or flap procedure are surgical methods. (6,23,24)

Karydakis reported in his studies that the lateral flap technique is easy applicable and the rate of infection is low with faster wound healing due to divergence of the suture line from the midline. The recurrence rate in this study was defined as 1%. (11) We observed the recurrence rate for Karydakis method as 6.35% in our study. Recurrences for other flap methods are also seen in different rates. That is why the recurrence rates are becoming more important in the treatment of the disease and we think that the methods with low recurrence rates would be the ideal treatment modality.

Wound infection, seroma, hematoma and wound separation are major problems in treatments with flaps. Tardu et al. observed different rates of complications in their studies. (25) We observed infection, seroma-hematoma and wound separation rates as 7.1%, 5.6% and 3.2% respectively in our study for patients who performed Karydyakis procedure.

Sakcak et al. applied phenol in different concentrations to separate two groups and observed different rates of recurrences. (26) We also applied phenol in our study, but we used crystallized phenol. Crystallized phenol is more concentrated than liquid phenol and is easier to apply. For that reason we prefered concentrated phenol for the study. No recurrence were noted in patients. It was important that there was no entry of hairs into the sinuses. Hair entering the sinus can cause foreign body reaction. (27) Patients were warned about this to keep the areas hairless and clean. We observed them complying with this.

The anesthethic method applied for the treatment of the disease is also an important factor. Patients undergone phenol application were all treated by local anesthesia. They tolerated local anesthesia perfectly. There is no need for spinal, epidural or general anesthesia for the phenol application as this. This is another reason for our choice of phenol treatment method.

Another factor affecting the treatment is complication after the operation. Especially seroma, hematoma and wound infection affect the treatment process and recurrences. (28) We have not observed seroma, hematoma or wound infection in patients treated with phenol in our study. Patient life comfort in not affected poor in

Table 3. Complication rates in karydakis and phenol groups

Complications	Karydakis group	Phenol group
Infection	9 (7.1%)	0
Seroma-hematoma	7 (5.5%)	0
Wound separation	4 (3.1%)	0

Table 4. Recurrence rates in karydakis and phenol groups

	Number of patients with recurrence	Number of patients without recurrence
Karydakis group	8(6.5%)	118(93.5%)
Phenol group	0(0%)	25(100%)

P=0.11

this way. But some studies with phenol revealed side effects like abscess and skin burn. (29)

Consequently, crystallized phenol can be used in the treatment of pilonidal sinus disease because of being more conservative method, the low recurrence rate, needing only local anesthesia – so having low cost, giving the patient chance to return back to daily activities earlier and having low morbidity rate.

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