

## Outpatient Treatment of Pilonidal Sinus by Phenol Sclerotherapy

MOHAMED S. HAFEZ, M.D.

*The Department of Surgery, Faculty of Medicine, Cairo University.*

### Abstract

The study included 28 patients with chronic post anal pilonidal sinus; 22 were males and 6 were females. The average age was 24.7 years. They were treated by full strength phenol sclerotherapy. Injection was performed in the outpatient clinic without general anaesthesia. Local infiltration anaesthesia was sometimes administered. In 7 patients (25%) a sinus opening had to be sharply widened for adequate removal of hair from inside the sinus. Hair was found in a total of 10 patients (35.7%). The 28 patients received 65 injection sessions. The procedure failed in 2 patients and recurrence occurred in another 2 patients, 2 and 4 months after apparent cure. One of the recurrent cases could be successfully treated by reinjection, resulting in 89.3% final cure rate. The follow up period after cure ranged between one to 4 years. The average was 17.5 months. The complications of the technique were all minor. Pain during the procedure was mainly due to the trials for removing hair from the pits. It was usually tolerable. Small superficial chemical burn of the skin around the sinus occurred in all patients, but it healed readily without complication. Minimal sloughing of a sinus opening developed once. It can be concluded that phenol sclerotherapy of chronic post anal sinus is a very satisfactory line of treatment. It is very simple. It can be done as outpatient procedure without general anaesthesia. It does not necessitate any sick-leave or limitation of activity. It gives an excellent cure rate for such a disease notorious for recurrence, with negligible complications. It can be repeated without any inconvenience. It has a marvellous cost-effectiveness ratio.

### Introduction

THE term pilonidal sinus was first applied to a hair containing sinus in the sacrococcygeal region by Hodges in 1880[1].

One century later, the etiology, pathogenesis and treatment of this common condition are still a matter of debate and controversy. The disease is still a problem for

the surgeon, a nuisance to the patient and a financial strain on the health industry [2-6].

The high recurrence rate of the disease [5, 7-10] stimulated some surgeons to devise radical operations, which not only remove the sinus, but also eliminate the post anal cleft [11-13]. On the contrary, for the same reason, others adopted the non-surgical and conservative procedures. One of these techniques is the injection sclerotherapy of the pilonidal sinus with phenol. It was first introduced by Maurice and Greenwood in 1964 [14] and it was strongly advocated by Stephens & Sloane [15], Stewart & Bell [16] and Shorey [17].

The aim of this work is to assess the feasibility of the injection sclerotherapy of full-strength phenol for the treatment of chronic post anal pilonidal sinus under no anaesthesia. The long-term efficacy and safety of the method will be evaluated in a prospective, controlled trial.

#### **Patients and Methods**

In this work 33 patients with chronic post anal pilonidal sinus were treated with phenol sclerotherapy. However, only the patients who were followed up for, at least, one year after the last treatment session, and those in whom the injection sclerotherapy failed were included in the study. These were 28 patients treated over about 6 years in Kasr Al-Aini Hospital and in private practice in Egypt and in Saudi

Arabia. The other 5 patients did not appear after the first injection session.

The patients were informed about the nature of the procedure and its potential advantages and shortcomings. They were also informed about other treatment options. The history of the disease was recorded, as well as, the number, appearance and site of the sinuses.

The patients who presented with acute pilonidal abscess were treated by incision, with excision of an ellipse of the skin. The abscess cavity was gently curetted. A gauze soaked with povidone-iodine was packed inside the cavity for 24 hours. The patient was given the dressing instruction. After healing of the abscess, only if a chronic sinus was undoubtedly left, phenol sclerotherapy was considered.

Before commencing the chemical therapy, the patient was instructed to remove the hair of the back and buttocks down to the anal verge by a depilatory cream.

The procedure was performed under no anaesthesia. The patient was lying prone. An assistant helped to separate the buttocks, or they were kept apart by strips of adhesive tape. Trial was done to remove any hair from the sinus by a fine forceps. The sinuses were squeezed to exclude any pus, blood and debris. Blunt plastic cannulae were chosen to fit snugly into the sinus openings. The cannulae were placed into the pits to keep them patent. The surrounding skin was liberally covered with

paraffine jelly (vaseline), to protect the skin from the phenol, which would spill out of the sinuses during and after injection. Further protection of the skin around was achieved by cotton-wool. The cannulae were then removed.

A fully saturated solution of phenol in alcohol was injected by a 2-3 ml syringe with a Luer Lok connection. In cold weather, the solution had to be warmed to dissolve the phenol crystals. The selected cannula was fixed firmly to the syringe to protect against dislodgement and splash of the phenol, which could injure even the operator face. The largest pit was usually injected first. Phenol most often came out of the other openings. Any sinus pit, that did not show spill over of the sclerosant, was injected separately. Irrigation of the sinuses with the phenol should be without undue pressure. After two minutes, the sinuses were squeezed to expell the phenol and any debris. The procedure was then repeated for a second time. Excess phenol was firmly squeezed to prevent leaking out and excoriation of the skin. An antiseptic or antibiotic ointment and a small dressing were applied.

The patients were allowed to leave immediately. They were instructed to remove the dressing after half an hour. They were prescribed silver sulphadiazine cream 1%, for the almost inevitable small superficial burn of the skin around the sinuses. Regular depilation of the hair was reemphasized.

Reinjection by the same technique was done after one week. If there had been severe inflammatory reaction or necrosis of the injected sinus, or there had been excessive excoriation of the skin, reinjection was deferred. The patients were reexamined monthly, and were reinjected if there was any patent pit, to a maximum of 5 injection sessions. After a total of 5 sequential injection sessions without cure, the case was considered a failure of the method. Once the sinuses had closed, the patients were instructed to come every 3 months for follow up for one year. Thereafter, they were asked to come every 6 months.

After this protocol had been applied for about one year, it was recognized that sinuses with relatively wide opening and those with chronic abscess cavity did not respond well to the injections. By chance, it was discovered that in such cases, there was usually a considerable amount of hair in a subcutaneous pocket, which was not possible to retrieve through the sinus meatus. The latter had to be incised vertically for about 5 mm under local infiltration anaesthesia, and the sinus was truly cleared. After the cavity had healed or diminished to a minimum injection, sclerotherapy was carried on. This technique then became a routine for such types of pilonidal sinus, before embarking on the chemical therapy. Also it was applied to the sinuses which did not close after 3 injection sessions.

### Results

The study included 28 patients with chronic post anal pilonidal sinus. They were 22 males (78.6%) and 6 females (21.4%). Their ages ranged between 19 to 36 years. The average age was 24.7 years. four patients (14.3%) had single middle line sinus, while 19 patients (67.9%) had two or more pits. The remaining 5 patients (17.9%) had one or more secondary openings away from the median primary pits.

In 6 patients (21.4%) there was a sinus orifice, which was wider than a 14 gauge cannula. In 5 of them this orifice was incised, and hair and debris were removed from inside. Overt collection of hair was found in 4 cases. In one of them, which was a female, a hair bundle of 3-5 cm in length was found inside. The hair had the same colour and thickness of the patient's scalp hair. Minute incision was also done in two patients with non-infected fine sinuses, but who had received 3 sclerotherapy sessions without cure. A hair containing pocket was found in one of them. Thus, apart from the patients who presented with acute pilonidal abscess, a total of 7 patients (25%) had their sinus opening sharply widened for thorough cleaning. As a side issue, macroscopic hair was found, with or without incision, in 10 patients (35.7%).

The 28 patients received 65 injection sessions. The average was 2.3 sessions per

patient, and the range was 1 to 6. Three of the patients, in whom the second session was delayed because of an excessive local reaction, had their sinuses obliterated without the need for further injection. On the other hand, a patient who had 2 recurrences received a total of 6 sessions (Table 1).

Table (1): The Distribution of the 65 Injection Sessions among the 28 Patients

Number of injection sessions	1	2	3	4	5	6
Number of patients	3	19	3	1	1	1

Phenol sclerotherapy failed to achieve cure of the pilonidal sinus in 2 patients (7.1%). One patient insisted on surgery after the failure of 3 injection sessions. The second received 5 sessions without complete obliteration. His sinus was incised after the third session to explore for any hidden hair, but none could be found.

In 2 other patients (7.1%) recurrence occurred 2 and 4 months after apparent cure. Recurrence presented as a small abscess. The abscess was treated by incision under local anaesthesia. After few weeks reinjection was attempted through the incision site. In one patient about 1 ml of the phenol passed without resistance into deeper tracts. In the other case, the incision site did not admit any flow. These 2 patients subsequently showed complete healing. Three months later, however, the

second patient developed another abscess indicating failure of the procedure.

The primary cure rate without recurrence was 85.7% (24/28 patients). The final cure rate, after the successful treatment of one of the recurrent cases, was 89.3% (25/28 patients). These 25 patients were followed up for one to four years. The average follow up period was 17.5 months.

The complications associated with the procedure were all minor. Pain during the trial of removing hair from the pits was mild. It was well tolerated by all patients except three, who were given local infiltration anaesthesia. By inquiring the patients about pain during the step of phenol injection, 12 (42.9%) testified that it was painless. The other patients (57.1%) experienced mild burning sensation.

Chemical burn of small area of skin around the sinus occurred in all patients. During wiping of the spilled over phenol, part of the petroleum jelly was inevitably removed. Distant burns, mainly of the buttocks, due to splash of the phenol were a misshape in 2 patients. All burns however were superficial. None had reached the anal area. They healed readily within a week, except in 5 patients (17.9%) where regeneration took between 10 to 20 days. These were obese patients with deep natal cleft. The burns left change in the skin colour, usually hypopigmentation, in 9 patients (32.1%), but this was invisible being small and buried in the natal cleft.

A single patient (3.6%) developed a small necrotic area after the second injection session. He was conservatively treated. The slough separated and the pit healed without complication in about 5 weeks.

### Discussion

A large number of operations have been described for the treatment of pilonidal sinus, and all have their supporters. The many approaches, however, attest to the dissatisfactory results of each method. The technique of open excision, which resulted in a high incidence of cure, was associated with a very prolonged healing time; an average of 86 days was reported by Berkowitz [18] and 10 weeks by Notaras [8]. Notaras also noted that the average sick-leave was 8 weeks. The radical procedures with Z-plasty or rhomboid flap, which have been proposed to minimize the incidence of recurrence, are too major for such a minor disease. Bose & Candy [19] reported 20% necrosis of the corners of the Z-flaps, 14.3 days average hospital stay, and 5.5 weeks average absence from work.

The principle of sclerotherapy for pilonidal sinus is not very recent. The chemical agents that have been employed are Carnoy's solution [20] nitric acid [21] sodium morrhuate [22], ethanalamine oleate [23] et cetera. The encouraging results however after the use of phenol [14] stimulated others to repeat the technique. In the present study, full strength phenol

was used in the sclerotherapy of chronic post anal pilonidal sinus and the method was very simple, safe, effective and satisfactory.

In this series, the procedure was successfully performed 65 times in 28 patients without general anaesthesia. All were treated as outpatient cases. Local anaesthesia could solve the problem of the exceptionally irritable patients with low pain threshold. Infiltration of few millilitres was also sufficient to incise a sinus opening for thorough cleaning. The injection session was completed in less than 15 minutes. When elimination of the sinus tracts had been protracted, and when recurrence had occurred, the procedure could be repeated without any inconvenience. An important complementary advantage is the very low costs of the method. The previous similar trials were all done under general anaesthesia as a day case procedure. Nevertheless, still their technique was considered relatively a very simple one. Only Stephens & Sloane [15] injected 6 out of 30 patients without general anaesthesia.

The previous studies did not mention the occasional need to widen a sinus opening in order to remove hair and debris. Most probably this point did not arouse attention because they were performed under general anaesthesia.

The previous trials were based on a single injection session. In this study, only 3 patients were cured by one injection,

while the others required multiple sessions. Six patients (21.4%) received more than 2 sessions. From our limited experience, we got the impression that, if hair could be completely removed from the inside of the sinus, an injection, that ensures irrigation of all tracts, would be sufficient to eliminate the disease. This objective, however sometimes needed more than one trial to accomplish.

Our overall cure rate was 89.3%, which was comparable to that reported by Shorey [17]; 91.3%. Stephens and Slonane [15] however completely eliminated the disease in all their 30 patients for 6 months to 3 years follow up period. The cost-effectiveness together with the simplicity are strongly in favour of the sclerotherapy, particularly that failure and recurrence have been recorded after all other methods of treatment. We believe that the crucial step in the success of the method is in getting all the hair out of the sinus. With experience, this can be better achieved.

The previous studies omitted the minor chemical burn that is very likely to occur around the injected sinus. Most probably that is because it is usually too superficial and too small to deserve special care. A small slough developed at the site of injection in 2 out of 30 patients [15]. The same complication affected one of our patients.

As a side issue, the relatively long hair bundle which was found in a sinus of a fe-

male patient, and the similarity of this hair to the patient's scalp hair support the hair penetration hypothesis against the more recent pilo-sebaceous follicle hypothesis. The findings also suggest that the penetrating hair can come from a distant area and not necessarily from the natal cleft region. Further studies of this matter are indicated, but this is beyond the scope of this work.

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