

Effective conservative treatment of umbilical pilonidal sinus disease: Silver nitrate? Salt?



Ann. Ital. Chir., 2015 86: 450-455
pii: S0003469X15023933

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Effective conservative treatment of umbilical pilonidal sinus disease. Silver nitrate? Salt?

OBJECTIVE: The aim of this study was to compare the three different treatment methods and investigate the effectiveness of the therapeutic effect of common salt.

METHODS: This retrospective study involved patients who were treated in our clinic for umbilical pilonidal sinus disease between January 2010 and December 2011. The patients were divided to three subgroups according to treatment methods. Group I: Cases treated with only local debridement and systemic antibiotic, group II: cases treated with local debridement, systemic antibiotic and silver nitrate, group 3: cases treated with debridement, systemic antibiotic and salt.

RESULTS: In this study, 63 patients with the diagnosis of UPS were treated in our clinic. The patients were classified into three groups; group I included 20 patients, group II included 18 patients and group III included 18 patients. During 16-24 months of follow-up, 4 (20%) recurrences in group 1 and 2 (11.1%) recurrences in group 2 were detected. Recurrence rate of group 3 was significantly different (5.55%) when compared to group 2. The mean period for returning to daily activities and work was 1 day for the patients.

CONCLUSION: In conclusion, we suggest that pilonidal sinus cases which are not complicated by abscess and cellulitis can be treated by local removal of umbilical hairs, debridement and dressing without surgery. We conclude that application of common salt (table/ cooking salt) to umbilical pilonidal sinus with granuloma is a simple and highly effective way of treatment without any relapse and complications.

KEY WORDS: Conservative treatment, Local debridement, Umbilical pilonidal sinus

Introduction

Although pilonidal sinus disease generally occurs in sacrococcygeal area, it was first reported in 1946 by Patey and Scarf that it may also occur in other parts of the body¹. Cases of pilonidal sinus involving umbilicus, fore-

head, scalp, clitoris, interdigital area, penis, abdomen, neck and axilla have been reported later, but studies involving large series of pilonidal sinus cases with the involvement of areas other than sacrococcygeal region are rare^{2,3}.

The disease originates from a granulomatous reaction caused by a hair penetrating into subcutaneous tissue, which means that the disease is actually an infectious disease of subcutaneous tissue. It involves hairs nested in subcutaneous tissue and infection of this area followed by recurrent abscess formation or discharge^{4,5}.

Umbilical pilonidal sinus disease is the most common form located outside the sacrococcygeal area. Main symptoms are similar to that of sacrococcygeal pilonidal disease and include discharge, pain, swelling, itching and

Pervenuto in Redazione Marzo 2015. Accettato per la pubblicazione Maggio 2015

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TABLE I - Patient demographics and characteristics.

Characteristic Features	Group 1	Group 2	Group 3	P
Age (Years)	Mean 25.22	Mean 28.34	Mean 23.18	>0.05
Gender	Male	15	14	>0.05
	Female	3	4	
Obesity	Overweight (BMI 25 - 29.9)	9	11	>0.05
	Obesity (BMI 30-39.9)	8	6	
	Morbid Obesity (BMI ≥ 40)	1	1	
Degree of Hirsutism	Excessive	13	12	>0.05
	Normal	4	4	
	Inconsiderable	1	2	
History of PS	5	6	4	>0.05
Positive Family History of PS	12	11	9	>0.05
History of Smoking	16	14	9	>0.05
History of Wearing Tight Clothes	16	14	17	>0.05

odor. Although both surgical and conservative treatment modalities are present, conservative treatment is the most preferred one. Surgery is not recommended unless necessary. The most common conservative treatment modality is drainage and cleaning of the sinus followed by chemical cauterization with silver nitrate. In addition, local application of antibiotic ointments after removal of hairs and local disinfectants are other described treatment modalities^{6,7}.

In this retrospective study, we aimed to compare and discuss, in the light of literature, the results of three different treatment modalities (local debridement, silver nitrate application, salt application) which we have applied to our patients for umbilical pilonidal sinus disease (Table I).

Material and Method

This retrospective study involved patients who were treated in our clinic for umbilical pilonidal sinus disease between January 2010 and December 2011. Enrolled patients were the ones who refused surgery and preferred conservative treatment modalities. Patients with missing data, patients scheduled for surgery and patients with complicated umbilical pilonidal sinus (abcess and cellulitis) who preferred conservative treatment were excluded. The study data were obtained from patient files, episcrisis notes, outpatient clinic, dressing and patient follow up records, computer and personal records of the patients. Parameters were completed by making phone calls to patients (Table I).

Umbilical pilonidal sinus diagnosis was confirmed by physical examination of the patients with the complaints of drainage, pain, swelling, itching and odor in umbilical area (Fig. 1). Patients with periumbilical abcess and cellulitis were accepted as complicated UPS. Patients were classified into 3 groups and evaluated.



Fig. 1: A case of a male umbilical pilonidal sinus with the complaints of drainage, pain, swelling, itching and odor in umbilical area.

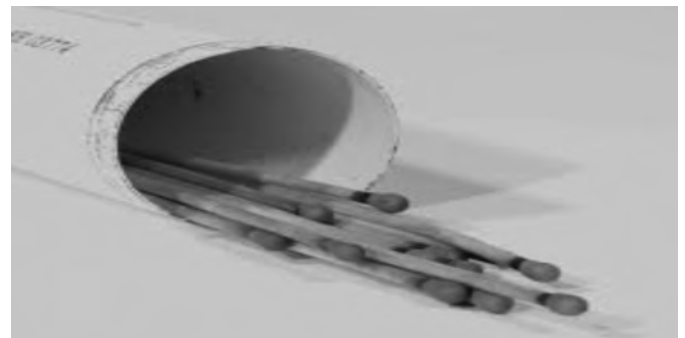


Fig. 2: Silver nitrate sticks (Treatment materials).

The first group of patients (Group-I; local debridement and systemic antibiotic) were treated by removing hairs of umbilical area, dressing with povidone iodine (10%) (Batticon solution, 100 ml, Adeka), personal hygiene and systemic antibiotics.

For the second group (Group-II; local debridement, systemic antibiotic and silver nitrate), shaving of the whole area was obligatory. Silver nitrate sticks (Fig. 2) were applied in the local operating room. The umbilical pit

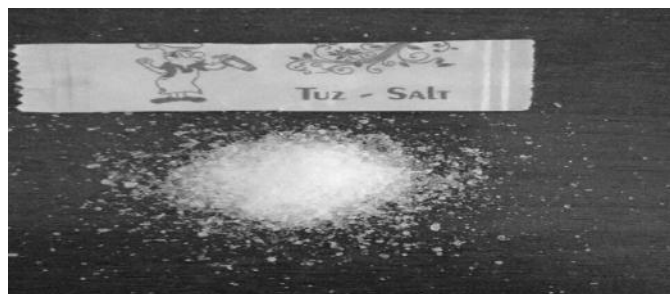


Fig. 3: Table/cooking salt (Treatment materials).

was dilated with a clamp, it was confirmed under direct vision that the sinus was not complicated, and then hair and debris were removed. We checked the area once a week and occasional cauterization by silver-nitrate sticks was necessary due to the presence of hypergranulations at the openings of the umbilicus.

For the third group (Group-III; debridement, systemic antibiotic and salt), the umbilical pit was dilated with a clamp, it was confirmed under direct vision that the sinus was not complicated, then hair and debris were removed. A small pinch of table/cooking salt (Fig. 3) was applied over the umbilical region after cleaning with cotton ball soaked in boil water and the area was covered with adhesive tapes and it was held in the place for 30 minutes. Thereafter, the lesion was cleansed using cotton ball soaked in boiled water. The procedure was repeated twice a day for three consecutive days.

The patients were evaluated retrospectively and compared for age, gender, body mass index, past medical and family history of pilonidal sinus, bath frequency, smoking status, status of wearing tight dresses and presence of primary disease or recurrence. In addition, the groups were also evaluated for the presence of recurrence, complications, healing duration, treatment duration and time to return to work (Table II).

Statistical Analysis

The statistical analysis was performed using SPSS (Statistical Package for the Social Sciences ver. 10.0, SPSS

Inc, Chicago, Illinois, USA) computer program. Categorical variables were expressed as percentages (%). Parametric variables showing a normal distribution between groups were compared by Student t test and parametric variables that did not show normal distribution between groups were compared by Mann Whitney U test. Chi-square and Fisher's exact chi-square tests were used for comparison of categorical variables. For all statistical analysis, $p < 0.05$ was accepted as significant.

Results

During the period of 24 months, 63 patients with the diagnosis of UPS were treated in our clinic. Since 3 patients who preferred surgery, 3 patients with missing data and 1 patient with complicated UPS were excluded; the study was conducted with 56 patients. The patients were classified into three groups; group I included 20 patients, group II included 18 patients and group III included 18 patients.

46 of the patients (82.14%) were males and 10 (17.86%) were females. The mean follow up period was 18 months (16-24). Median age was 22.5. Detailed data for age, gender, BMI, body hair structure and pilonidal sinus history of the patients were shown in Table 1. Excessive hirsutism was present in 71.4% ($n=40$) of the patients. History of wearing tight clothes was present in 83.9% ($n=47$) of the patients. When patient groups were compared, a statistically significant difference was not found between three groups in terms of age, sex, history of smoking, hirsutism status, family history of PS, history of wearing tight clothes and BMI ($p > 0.05$).

Table II shows that all groups had similar clinical presentation and sinus characteristics with no statistically significant differences between them ($P > 0.05$). Primary PNS, as opposed to recurrent PNS, was the main clinical presentation in the groups (60.71% versus 39.2%). Pain were the main symptoms in all groups lasting mostly for 6 – 24 months. As shown in Table III, treatment duration of group 2 was longer, but this was statistically insignificant. Likewise, three groups did not differ significantly from each other regarding the duration

TABLE II - Clinical presentation and sinus characteristics.

Characteristic Features	Group 1	Group 2	Group 3	P
Primary UPS	12	13	9	>0.05
Recurrent UPS	8	5	9	>0.05
Main Symptom				
Discharge	4	6	5	>0.05
Pain	8	4	5	
Local Induration	6	5	4	
Bleeding	2	3	4	
Duration of Manifestations				
<6 months	8	8	5	>0.05
6-12 months	8	5	8	
>12 months	4	5	5	

TABLE III - Operative time and postoperative course.

Characteristic Features	Group 1	Group 2	Group 3
Treatment Duration (Hours)	13.2 ± 8.9	13.9 ± 6.8	13.8± 2.8
Wound Healing (Days)	14.02±4.59	10.3±7.28	12.01±6.48
Complications	Seroma	1(5.55%)	1(5.55%)
	Wound Infection	2(10%)	1(5.55%)
	Edema	1(5%)	2(11.1%)
	Bleeding	1(5%)	1(5.55%)
	Periumbilical Burn	0 ^{a, b, c}	2 (11.1%) ^{a, b, c}
Recurrence	4(20%) ^b	2(11.1%) ^c	1(5.55%) ^{b, c}
Returning to Normal Daily Activities (Days)	1.2	1	1.1

a = Statistically significant difference between Group I and Group II, p<0,05

b = Statistically significant difference between Group I and Group III, p<0,05

c = Statistically significant difference between Group II and Group III, p<0,05

of treatment, time needed for complete wound healing, returning to work or normal physical activities. However, all of the patients enrolled in this study were discharged from hospital on the same day of treatment period. Overall complication rate was not significantly different between all three groups, while periumbilical burn complication rate was significantly different between groups. During 16-24 months of follow-up, 4 (20%) recurrences in group1 and 2 (11.1%) recurrences in group 2 were detected. Recurrence rate of group 3 was significantly different (5.55%) when compared to group 2. The mean period for returning to daily activities and work was 1 day for the patients.

Discussion

Pilonidal sinus disease usually occurs in sacrococcygeal area, disrupts quality of life and sometimes leads to long term labor loss⁸. In 1880, Richard Manning Hodges created the word 'pilonidal' by combining 'pilus'(meaning hair in Latin) and 'nidus' (meaning nest in Latin)^{9,10}. Since it was first described in sacrococcygeal area, it seems that this name is identified with the area it most commonly involves. However, pilonidal sinus disease is named according to the area involved. The name for umbilicus, which is the most common involved area other than scarococcygeal region, is Umbilical Pilonidal Sinus Disease.

Many aspects of pilonidal sinus disease such as etiology, treatment and predisposing factors are contentious in the literature and still a full consensus could not be achieved. The best example for this is the etiology of the disease. While clinical and pathological observations support congenital origin, some specialists suggest that it is an acquired disease^{11,12}. These specialists state that UPS occurs in the presence of some predisposing factors. Young age, being adult man with excessive hirsutism, obesity, excessive sweating, deep umbilical pit and insuf-

ficient personal hygiene are accepted as predisposing risk factors^{13,14}. Hairs shed from chest and abdominal region collect in umbilical pit with the pulling effect of urachus, cling to skin like a hook and cause foreign body reaction and edema, which narrows the umbilical pit causing cyst formation. Abscess formation may be seen in case of superimposed local infection⁴. According to the idea supporting congenital origin, congenital anomalies of neural canal closure are responsible for the disease¹⁵. At present, however, concept supporting acquired origin is widely accepted⁸.

Since there are heated debates in the literature about sacrococcygeal pilonidal sinus disease (SPSD), its treatment is more or less understood. However, a definite disagreement exists on the treatment of umbilical pilonidal sinus disease. The reason for this is the presence of many different alternatives for treatment and surgeons modifying these treatment modalities. As in SPSD, surgical and non-surgical treatment modalities can be applied. Non-surgical treatment modalities include phenol application into the sinus, electrocautery or chemical cauterization of the cavity with silver nitrate and cryotherapy^{6,16}. Another conservative treatment method, which we also apply, is salt application. In 1972, Schmitt¹⁷ described the shrinking effect of common salt on umbilical granuloma in a very short note. The curative mechanism of salt is thought to be due to the high concentration of sodium ion in the area which draws water out of the cells and results in shrinkage and necrosis of the wet granulation tissue. However, this effect is not so powerful to cause damage in normal surrounding cornified tissue when applied for a short treatment period¹⁸. Surgical treatment includes sinus excision, umbilicus reconstruction and umbilectomy¹⁹.

Treatment should be personal and planned considering patient's status; one of the conservative or surgical treatment modalities must be chosen. An ideal pilonidal sinus treatment modality must be easy, less painful and cheap, length of hospital stay must be short, it must be suit-

able for local anesthesia, patient must return to normal daily activities as soon as possible and recurrence rate after treatment must be low. For these reasons, we recommend conservative treatment. Surgery should be conserved for cases with recurrence and patients who do not respond to conservative treatments⁴.

An ideal conservative treatment modality should have a short recovery period and it should be easy to apply, well tolerated and less painful. In a study by El-Bakry AA.²⁰ who reported 44 patients with chronic umbilical discharge; 33 patients with pilonidal sinus were successfully treated by removing umbilical hairs and dressing, only 2 patients with infraumbilical cellulitis taken antibiotics and none of the patients undergone surgery. In the conservative method of Eryilmaz et al.⁴, umbilical hairs were removed, sinus curettage was performed, chemical debridement with silver nitrate was applied for the cases with granulomas, drainage was performed and wide spectrum antibiotics were given to cases with abscess formation and the patients were successfully treated without the need for surgery. We mostly extracted the hairs in umbilical sinus tract and cleaned them with common cleaning solutions.

Reports of pilonidal sinus of the umbilicus are few in number¹⁴ and fewer than 20 cases were reported before 1980²¹. Goodall reported 163 cases of pilonidal sinus, of which only one involved umbilicus, which makes an incidence of 0,6%²². In a study by Eryilmaz et al.⁴ 92% of the patients were male. In fact, most of the series of umbilical pilonidal sinus involved especially male patients. There are quite scarce numbers of female patients reported in the literature²³. In our study, 82.15% of the cases were male and 17.85% of cases were female, which was consistent with the literature data.

Eryilmaz et al.⁴ described the most common symptoms as umbilical pain, bloody discharge, purulent discharge and umbilical mass with the frequencies of 100%, 69%, 23% and 26%, respectively. All of the cases involved in this study had edema, discharge and sinus opening.

Other umbilical region anomalies such as umbilical hernia, endometriosis (for women), Sister Mary Joseph nodule, pyogenic granuloma, urachus and epidermoid cysts should be kept in mind in the differential diagnosis²⁴. Although sacrococcygeal pilonidal sinus disease is more common in obese patients, umbilical pilonidal sinus disease is rare in obese people. This may be the result of the flattening of umbilical hole in obese patients, decreasing the migration of hairs of chest and abdominal area to umbilical hole. Deep navel, an important anatomical variation, was quite common in our patients. UPS occurs more frequently in young hairy males (mean age 22,5 years), hence is more common among students¹⁴. The fact that young males prefer wearing tight clothes may lead to UPS to occur more commonly in this age group. Wearing belt causes the hairs to be collected at the level of umbilicus and sets the ground for a moist envi-

ronment where hairs penetrate into the skin. In addition, hirsutism is probably the most important predisposing factor²⁵.

In our study, patients were successfully treated by removing umbilical hairs, dressing and chemical debridement with silver nitrate in the presence of a granuloma and recurrence was observed in 2 patients during a mean follow up period of 18 months. Besides local intervention, NaCl was applied to Group 2 patients and recurrence was observed in 1 patient. A statistically significant difference was observed with regard to recurrence and need for surgery between the group 1 (the group which had systemic antibiotics, local debridement and dressing) and other groups.

In the literature, there are reports in which surgery have been performed especially for recurrent cases²⁶. In our patient series, 22 patients had recurrent umbilical pilonidal sinus and they were all successfully treated with three conservative treatment methods. It was suggested that conservative treatment modalities were especially unsuccessful in patients with high body mass index. However, the main reason for unsuccessful treatment is inadequate cleaning of the sinus and removal of the hairs. In conclusion, we suggest that pilonidal sinus cases which are not complicated by abscess and cellulitis can be treated by local removal of umbilical hairs, debridement and dressing without surgery. We conclude that application of common salt (table/ cooking salt) to umbilical pilonidal sinus with granuloma is a simple and highly effective way of treatment without any relapse and complications.

Riassunto

Lo scopo di questo studio è stato quello di paragonare tre differenti metodi di trattamento del sinus pilonidalis ombelicale e valutare l'efficacia degli effetti terapeutici del sale comune.

Si tratta di uno studio retrospettivo che ha coinvolto pazienti trattati nella nostra clinica per sinus pilonidalis dell'ombelico nel periodo dal gennaio 2010 al dicembre 2011.

I pazienti sono stati suddivisi in tre sottogruppi secondo i metodi del trattamento adottato.

Gruppo I: pazienti trattati con soltanto lo sbrigliamento locale ed antibiotici per via sistemica.

Gruppo II: pazienti trattati con sbrigliamento locale, antibiotici per via sistemica e AgNO₃

Gruppo III: pazienti trattati con sbrigliamento locale, antibiotici per via sistemica e NaCl.

Sono stati trattati complessivamente 63 pazienti: del Gruppo I ne hanno fatto parte 20 pazienti; del Gruppo II 18 pazienti e del Gruppo III 18 pazienti.

Durante il follow-up di 16-24 mesi si sono avute 4 recidive (20%) nel primo gruppo; 2 recidive (11,1%) nel secondo gruppo, mentre nel gruppo 3 si è avuta una

solo recidiva (5,55%). L'intervallo medio per la ripresa delle attività quotidiane è stata di 1 giorno per tutti i pazienti.

Si può concludere che il sinus pilonialis ombelicale, se non complicato da suppurazione o infiltrazione, può essere trattato con l'asportazione dei peli ombelicali, sbrigliamento e semplice medicazione senza far ricorso alla chirurgia. L'applicazione del sale da cucina nei casi con granuloma è un metodo semplice e molto efficace di trattamento, senza recidive nè complicazioni.

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