Original Article

Use of Otoscope as a Diagnostic and Therapeutic Aid in Umbilical Pilonidal Sinus: A Novel Technique

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ABSTRACT

Introduction: Umbilical disorders are frequently encountered in general surgical practice. Although the sacrococcygeal region is the most common site for pilonidal sinus disease, it can be seen occasionally in periumbilical area. Treatment is mostly conservative for umbilical pilonidal sinus in contrast to the sacrococcygeal sinus where it is always surgical. In the era of endoscopy and minimally invasive surgery, we describe the use of otoscope as a novel technique for the diagnosis and treatment of umbilical pilonidal sinus. **Subject and Method:** In this prospective study, patients with a clinical suspicion of umbilical pilonidal sinus were included and diagnosis was confirmed on the basis of otoscopic finding. All patients were planned for conservative management i.e. extraction of hair fragments with the help of an otoscope followed by oral antibiotics treatment. On follow-up, response of treatment was noted by evaluation of symptoms and otoscopic examination. **Result:** Total 15 patients were included in this study. By using otoscope for removal of hair fragments from umbilical sinus, we found successful result in all patients with conservative treatment. **Discussion:** In umbilical pilonidal sinus, the success of conservative treatment depends on the effective extraction of hair and maintenance of personal hygiene by the patient. Our study showed 100% successful result of conservative treatment, probably due to proper and complete extraction of hair fragment with the help of the otoscope. **Conclusion:** Otoscopic examination and hair extraction for umbilical pilonidal sinus is a simple, cost-effective, and easy treatment that can be done in the outpatient department and does not require any formal training for its use.

Keywords: *Conservative management, otoscope, pilonidal sinus, umbilicus*

Introduction

The term "pilonidal" (Latin: *Pilus* means hair; *Nidus* means nest) was first suggested by Hodge in 1880; however, it was first described by Herbert Mayo in 1833.[1] Pilonidal sinus is a common problem of the sacro-coccygeal region but can occasionally occur in the axilla, groin, inter-digital webs, umbilicus, and inter mammary areas. The exact etiology remains unknown, but various predisposing factors for its development have been mentioned which include male sex, young age, hairiness, deep navel, and poor personal hygiene.[2]

Umbilical pilonidal sinus is a relatively uncommon disease which is characterized by a granulomatous reaction to the hair fragments penetrating deep in the umbilicus. Patients may be asymptomatic initially, but most of them present with pain in umbilical region, serosanguinous/purulent discharge or bleeding from the umbilicus.[3] Various treatment modalities have been described in literature ranging from conservative management to umbilectomy. The success of conservative treatment depends on the effective extraction of hair deep in the umbilicus. However, most of the patients respond to conservative management, but recurrence can occur due to the ineffective or incomplete extraction of the hair

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fragments. Difficult visualization deep into the umbilicus with the naked eye is the reason behind it. This led us to think about the use of otoscope for visualization into umbilicus. Otoscope being a small, self-illuminating instrument can be conveniently used for this purpose.

We studied 15 patients of umbilical pilonidal sinus and used an otoscope for diagnosing and treating them. The aim of our study was to know the cure rate of the patients with use of otoscope, with objectives to confirm the diagnosis and to see the response after conservative management.

Subjects and Methods

It is an observational study conducted in Department of General Surgery in our institute over a period of 3 years from January 2014 to December 2016. All patients presenting to the surgery OPD with discharging umbilical sinus with a clinical suspicion of umbilical pilonidal sinus were included in the study. Written and informed consent was taken from all the patients. Detailed clinical history and examination findings were noted on a prestructured format. Otoscope was inserted into the umbilicus and findings noted. Diagnosis of umbilical pilonidal sinus was confirmed on the basis of the presence of hair fragments deep in the umbilicus with or without redness, foul-smelling discharge or granulation tissue [Figure 1].

All patients diagnosed with umbilical pilonidal sinus were planned for conservative treatment, i.e., extraction of hair fragments with the help of an otoscope followed by oral antibiotics for 7 days. The otoscope was introduced into the umbilicus and with the help of curved mosquito artery forceps; the nidus of hair was extracted. Pus if present was taken on a swab and sent for culture and sensitivity. All the patients were subsequently counseled about maintaining personal hygiene, shaving of the hair of abdominal wall and keeping the umbilicus dry. The patients were followed in surgery OPD, initially after 1 week and then monthly for 6 months to re-examine the umbilicus and evaluation of symptoms.

Results

A total of 15 patients presented to the surgery OPD during the study. Out of 15 patients, 13 (86.7%) were male and 2 (13.3%) were female. 10 (66.6%) patients were <30 years of age, and 5 were more than 30 years of age [Table 1]. The most common clinical symptom was umbilical discharge (80%) followed by umbilical pain and swelling (26.7%). Only one patient presented with bleeding from the umbilicus [Table 2]. Otoscopic finding on the first visit of 8 (53.3%) patients was the presence of hairs along with a purulent discharge, 4 (26.6%) had hairs, and serosanguinous discharge, 2 (13.3%) had hairs only, and 1 (6.6%) had hairs, discharge, and granulation tissue [Table 3]. Diagnosis of pilonidal sinus in all the patients was confirmed on the basis of otoscopic examination showing hair tufts deep in the umbilicus. 13 out of 15 patients had been previously treated with varying duration of oral antibiotics for the same problem at various hospitals and had unresolving symptoms or recurrence.

Table 1: Demographic profile of patients

Age (years)	Gender	
	Male	Female
<30	10	2
>30	3	0
Total	13	2

Table 2: Clinical profile of patients

Clinical presentation	Number of patients (total 15) (%)
Umbilical discharge	12 (80.0)
Periumbilical pain and swelling	4 (26.7)
Bleeding from umbilicus	1 (6.7)

Table 3: Otoscopic findings on examination

Otoscopic finding on first visit	Number of patients
Hair only	2
Hair + serosanguinous discharge	4
Hair + purulent discharge	8
Hair + discharge + granulation	1

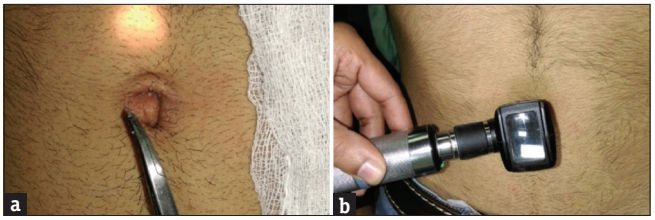

Figure 1: Purulent discharge from umbilicus (a), examination of umbilicus with the help of otoscope (b)

On the first follow-up visit at 1 week, we found significant relief in symptoms in 12 patients. These patients had clean umbilicus on otoscopic examination. Two patients had residual hairs in the umbilicus which were removed during the same visit. One patient required chemical cauterization due to the presence of granulation tissue. No recurrence of symptoms was seen on subsequent follow-up.

Discussion

Umbilical pilonidal sinus is a rare entity as compared to sacrococcygeal pilonidal sinus and was first reported in 1956 by Patey and Williams *et al*.[4] The incidence of umbilical pilonidal sinus in general population is 0.6%

as reported by Goodall.[5] Initially, it was thought that umbilical pilonidal sinus is a congenital condition which presents as a skin-lined sinus containing hairs that grow during puberty. Secondary bacterial infection occurs following increased sweating and sebaceous secretion in this age group.[2] This theory of congenital origin is however now considered as obsolete.

The theory of the acquired origin of umbilical pilonidal sinus was described by Dixit in 1976. Friction resulting from tight clothes and belts causes loosening of hairs which entangle and penetrate the umbilical cicatrix. This penetrating hair causes a foreign-body reaction and edema leading to further narrowing of the umbilical orifice, hence forming a sinus lined with granulation tissue. The secondary bacterial infection causes purulent discharge and pain at the umbilicus.[6] There are many contributory factors for the development of this condition such as male gender, young age, deep naval, hirsutism, poor personal hygiene, and tight clothing.[2]

In a study done by Eryilmaz *et al*. and Kareem, 92% and 90.3% of the patients were males, which is similar to our study having 86.7% of cases as male.[2,7] In our study, 80% of patients were <30 years of age which supports the literature mentioning the umbilical pilonidal sinus as a disease of young age. In our study, almost all male patients were hairy, and personal hygiene was poor in six patients (40.0%). One female patient was a diagnosed case of PCOD and had a hairy anterior abdominal wall.

In view of the acquired origin theory, conservative treatment should be considered as the first-line of management for umbilical pilonidal sinus. With good lighting conditions and the help of an assistant to retract the skin of the umbilicus, hairs can be seen deep in the umbilicus which can be removed. This procedure, however, causes much discomfort to the patient due to skin retraction, and also most of these patients have an anatomically deep naval with narrow edematous umbilical orifice due to an inflammatory reaction, which makes it difficult to extract the hair fragments from the umbilicus. In the study done by Kareem, the main cause of failure of conservative management has been found to be the improper extraction of hair fragments and poor personal hygiene, which leads to recurrence and makes surgical treatment inevitable.[7]

In the era of endoscopy and minimally invasive surgery, we used an otoscope to look deep inside the umbilicus for diagnosis and treatment of this disease. We found that 13 out of 15 patients (86.7%) responded well to conservative treatment in the first session. Two patients were retreated by the second session of otoscopic extraction of hair with antibiotics. In addition, one of these two patients required chemical cauterization. After successful treatment in all of the patients (100%), none of them complained about similar umbilical symptoms over 6 months of follow-up. Kareem and Sarmast *et al*. documented the favorable result of conservative treatment in 76.19% and 90% of cases, respectively.[7,8] However, our study showed 100% successful result of conservative treatment probably due to proper and complete extraction of hair fragment with the help of the otoscope.

Conclusion

The patients with complaints of umbilical pain, tenderness, discharge, bleeding, or an umbilical swelling, usually consult the general surgeon. Otoscopic examination and hair extraction for umbilical pilonidal sinus is a simple, cost-effective, and easy treatment that can be done in the outpatient department and does not require any formal training for its use. To the best of our knowledge, this is the first study reporting the use of otoscope in the effective diagnosis and management of umbilical pilonidal sinus.

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Conflicts of interest

There are no conflicts of interest.

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