

Interdigital Pilonidal Cyst

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The word *pilonidal* derives from the Latin words *pilos*, meaning hair, and *nidus*, meaning nest. A pilonidal sinus occurs most frequently in the sacrococcygeal region of the body and is an acquired condition that may develop when broken or cut hairs penetrate the skin. Sitting for prolonged periods (eg, drivers, students) may predispose to this condition.

Interdigital pilonidal cyst of the hand is a rare occupational disease that occurs primarily in male barbers. An acquired disorder that is not often problematic, interdigital pilonidal cysts occur when hair clippings penetrate the skin of the web space and initiate a foreign body reaction, most commonly between the ring and middle fingers. A sinus tract may then form.¹ The sinus tract openings, which are usually very small and difficult to visualize with the naked eye, can become as large as 1 mm in diameter. These sinus tracts may remain symptom-free for long periods of time; however, the sinuses are problematic when they become infected and drain, causing a chronic, disabling condition. This article discusses a case of interdigital pilonidal cyst in a 54-year-old male barber. A discussion of pathophysiology and treatment and a review of the literature are also presented.

CASE PRESENTATION

A 54-year-old male barber presents to a clinic with an approximately 2- to 3-year history of a swollen cystic area between the long and ring fingers of his right hand. The patient also complains of fever and chills. The patient was initially treated with oral penicillin by his family physician, which caused the swelling and erythema to subside. The patient reports that the embedded hairs had been working toward the surface of the skin for years and, until his current presentation, he had always been able to relieve the pain and pressure by squeezing the cystic area.

Physical Examination

On physical examination, a tender, erythematous lesion is noted between the long and ring fingers of

the patient's right hand. Fluid and two to three small hairs are expressed from one of the two draining sinuses. No evidence of ascending lymphangitis is noted.

Surgery and Management

Surgery to remove the cyst is scheduled 1 week following presentation. An oblique dorsal incision is made. The cyst is adherent to the proper digital nerves on the ulnar side of the long finger and the radial side of the ring finger, as well as to the proper digital artery on the radial side of the ring finger. The majority of the cyst is excised. All of the hair fragments are removed from the lobulated cavity. A second, more palmar sinus extends proximal to the deep transverse metacarpal ligament. A separate palmar incision is made to remove the remainder of the cyst (**Figure 1**). During excision, the proper digital artery is injured and repaired with 9-0 nylon. After surgery, the wound is loosely closed. No cultures are taken. The patient is placed on oral cephalothin (500 mg twice daily) and discharged home.

Histology

Microscopic examination of the excised cyst reveals granulation tissue, hair clippings, and diffuse fibrosis (**Figure 2**). Skin and subcutaneous tissue with embedded hair fragments are surrounded by severe acute and chronic inflammatory foreign body reaction.

Follow-up and Outcome

One week after surgery, the sutures are removed and the two sinuses demonstrate no sign of hair fragments or drainage. Reevaluation is scheduled in 1 week. However, redness and swelling at the site occur 2 days prior to the patient's reevaluation. In addition, some dysesthesia persists on the radial side of the patient's ring finger and two-point discrimination is greater than 10 mm.

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Figure 1. A portion of the cyst adherent to the proper digital nerve and artery is removed through a palmer incision.

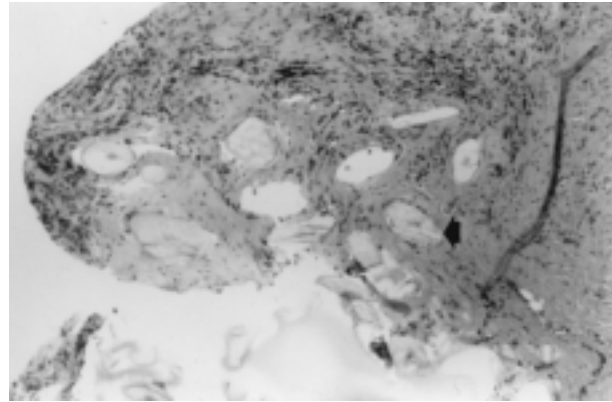


Figure 2. Histologic examination shows granulation tissue, diffuse fibrosis, and hair clippings (arrow). Hematoxylin and eosin stain, X 400.

Two weeks after surgery the patient is reevaluated. A second course of oral cephalothin is ordered and the patient responds well. Subsequently, the patient returns to work and uses a glove to keep his dressing in place.

One sinus is closed 5 weeks after surgery; the second sinus remains open, but nondraining. The second sinus closes over a period of 3 weeks (ie, 8 weeks after surgery). His neuropraxia resolves over a 3-month period. The patient has been asymptomatic for 2 years.

DISCUSSION

Interdigital pilonidal sinus of the hand is an occupational disease primarily experienced by barbers. The customer's hair penetrates the skin in the web space of the barber's fingers.¹

Etiology and Pathophysiology

Many theories exist regarding the entrance of hair into the skin (**Table 1**).²⁻⁸ Herbert Mayo published the first case of pilonidal disease in 1833.⁹ Allington¹⁰ and Templeton¹¹ were the first to describe interdigital pilonidal disease in 1942. Patey and Scarff^{4,5} described the condition in 1946 and again in 1948. Patey and Scarff⁴ concluded that the disorder "was an acquired condition caused by the penetration of hair clippings."

Patey and Scarff⁴ suggested that production of pilonidal sinuses occurred in two phases. In the first phase, a sinus is created by organisms penetrating the tissues, giving rise to infection. In the second phase, hair fragments enter the sinus and a negative pressure is produced, sucking the hair inside. The hair's presence in the sinus produces a foreign-body granulomatous reaction.

Patel¹ suggested that hairs become embedded in the soft skin of the web space when barbers use their fingers to comb the customer's snipped hair, which has sharp pointed ends. Constant friction between the fingers may also facilitate this process. The hairs then produce a foreign body reaction and sinus formation. The sinus may then become infected and develop into a chronically draining sinus.¹

In some chronic cases, a firm, round mass in the deep tissue of the web space can be palpated.¹² The histology of the interdigital pilonidal sinus is identical to that of the sinuses in the sacrococcygeal region.¹² The sinuses are lined with granulation tissue that develops because of daily introduction of hair fragments. The epithelium of the skin then develops a lining of its outer part.¹²

In 1949, King⁹ observed barbers at work and found that hair clippings did accumulate between the fingers and, in fact, seemed to "flow towards the interdigital space." King noted that these hairs found their way into a depression in the interdigital space and formed a pit; epithelialization of this pit was common. In 1951, Matheson⁶ described a case of interdigital pilonidal sinus in a sheep shearer. The presence of embedded sheep wool demonstrated the extrinsic origin of the sinus. In a case of foreign body granuloma with numerous giant cells, Waisman and Olivetti¹³ noted that, in some instances, the sinus tracts are lined with epithelial cells and in others, with granulation tissue.

In 1952, Hueston¹² reported a case in which the patient's sinus tract was lined with squamous epithelial cells continuous with the adjacent skin. However, in the depths of the sinus, granulation tissue was more common. Interestingly, he found "hair fragments in

Table 1. Possible Etiologies of Hair Penetration

Shampooing
Force of a comb on finger webs
Suction caused by negative pressure of the sinus cavity created by finger movement
Propelling force of barber's finger movements in full adduction
Skin texture in web space

the subcutaneous tissue, quite outside the lumen of the sinus." Hueston indicated that the space between the middle and ring fingers was most commonly involved and that, in longstanding cases, a firm, round pea-sized mass was often palpable in the web space.

Treatment

Treatment of interdigital pilonidal cysts may require excision of the sinus tract and antibiotic therapy. Primary wound closure is acceptable, but leaving the wound open to heal by secondary intention may be required. Taping over the opening of a sinus tract can prevent a nonsymptomatic tract from becoming symptomatic (**Figure 3**).

SUMMARY

Regardless of the mechanisms of hair penetration, interdigital pilonidal sinus remains an occupational disease of barbers that can become a bothersome, chronic condition. Placing a piece of tape over the sinus opening can prevent penetration of hair clippings. If infection develops in the sinus tract, the treatment of choice is a course of antibiotics, as well as excision of the sinus. HP

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