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# Interdigital pilonidal sinus: An occupational disease of pet groomers

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## Abstract

**Introduction** Interdigital pilonidal sinus is an acquired condition secondary to penetration of hair fragments into the skin of the web spaces of the hands commonly observed in hairdressers, and occasionally, among pet groomers. Local literature reports or guidelines to ensure practice of protective measures for this population of workers are currently lacking.

**Case Summary** A 24-year old pet groomer consulted due to occasional white hair strands emerging from two openings in the third interdigital space of his dominant hand. Histopathologic examination of the sinus tract showed an acanthotic, hyperplastic epidermis with scale crust, and nodular dermal infiltrates composed of epithelioid histiocytes, plasma cells, lymphocytes, and eosinophils. Transepidermal extrusion of polarizable hair cortical material was also evident establishing the diagnosis of an interdigital pilonidal sinus. Sinusectomy and debridement with healing by secondary intention resulted in an optimal wound closure and full motion of the affected hand after one week and minimal scarring with no recurrence after seven months.

**Conclusion** Surgical excision followed by proper wound care is essential to avoid recurrence. In conclusion, since interdigital pilonidal disease is a rare condition, awareness among physicians would lead to accurate diagnosis, optimal treatment, and proper patient education.

**Key words:** Pilonidal sinus, interdigital web space, pet groomer, occupational diseases

**P**ilonidal sinus is an acquired condition secondary to penetration of hair fragments into the skin.<sup>1</sup> Keratin is treated as a foreign body if it directly contacts the dermis, and the subsequent chronic inflammatory response results in the formation of

a sinus or cyst, where more hairs may then become entrapped.<sup>1,2</sup>

This disease typically develops in the sacrococcygeal, and other hair-bearing areas.<sup>1</sup> It has also been observed in the interdigital web spaces of the hands commonly in barbers, but only among a few dog groomers.<sup>2,3</sup> Interdigital pilonidal sinuses do not contain the patient's own hairs, as is the case in other pilonidal sinuses that develop in other areas such as the scalp, ears, chest wall, umbilicus, or anal canal.<sup>4</sup> Reported here is a case of pilonidal disease in a pet groomer and its surgical management.

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## The Case

A 24-year old left-handed pet groomer sought consult due to occasional white hair strands emerging from

two 2-mm openings approximately 1 cm apart in the third interdigital space of his dominant hand (Figure 1). Histopathologic examination of the sinus tract showed an acanthotic, hyperplastic epidermis with scale crust, and nodular dermal infiltrates composed of epithelioid histiocytes, plasma cells, lymphocytes, and eosinophils. Transepidermal extrusion of polarizable hair cortical material was also evident establishing the diagnosis of an interdigital pilonidal sinus (Figure 2). Meanwhile, whitish hair strands taken from the sinus opening were sent for fungal culture, which revealed negative findings.

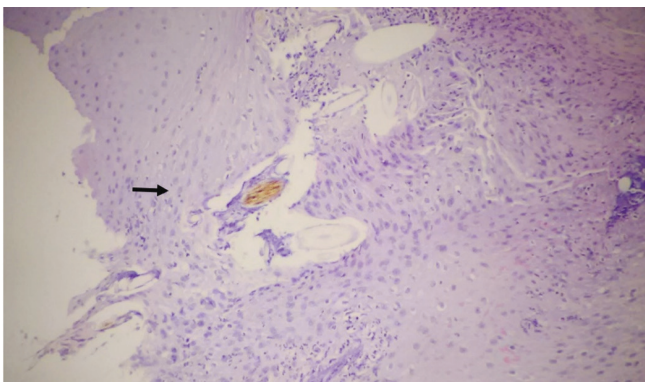
The patient was prepared for sinusectomy with interdigital local anesthesia. A stylet was inserted to serve as a guide in unroofing the interdigital sinus (Figure 3). A curette was used to debride the area, and an irregularly white fragmented tissue was removed, measuring about 5mm x 2mm x 2mm. A few strands

of hair were found embedded in the tissue. The patient was given a non-steroidal anti-inflammatory drug for a week. Sinusectomy and debridement with healing by secondary intention resulted in an optimal wound closure and full motion of the affected hand after one week. Seven months after sinusectomy, there was minimal scarring with no note of recurrence (Figure 4). He was advised to wear gloves during work and to wash his hands after each grooming to prevent recurrence.

Histopathologic examination of the specimen removed during sinusectomy revealed a hyperplastic stratified squamous with an area exhibiting an epidermal inclusion cyst, which was lined by thin, flattened squamous cells, and supported by a fibrous wall (Figure 5). The content consisted of lamellae of keratinous material. Scattered neutrophils were seen in some areas of the epithelium.



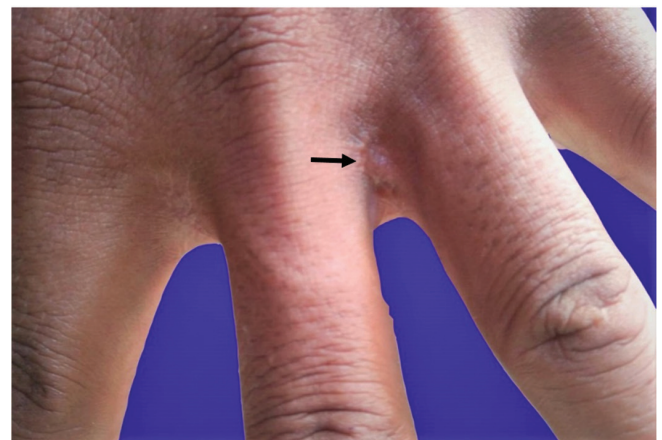
**Figure 1.** External openings of a sinus in the third interdigital space of the left hand (left); extracted white hair strands emerging from the sinus



**Figure 2.** Transepidermal extrusion of polarizable hair cortical material (arrow) with surrounding dermal infiltrates composed of epithelioid histiocytes, plasma cells, lymphocytes, and eosinophils (H & E stain, 40x magnification)



**Figure 3.** Probe insertion prior to sinusectomy (left) and appearance of the interdigital space after incision

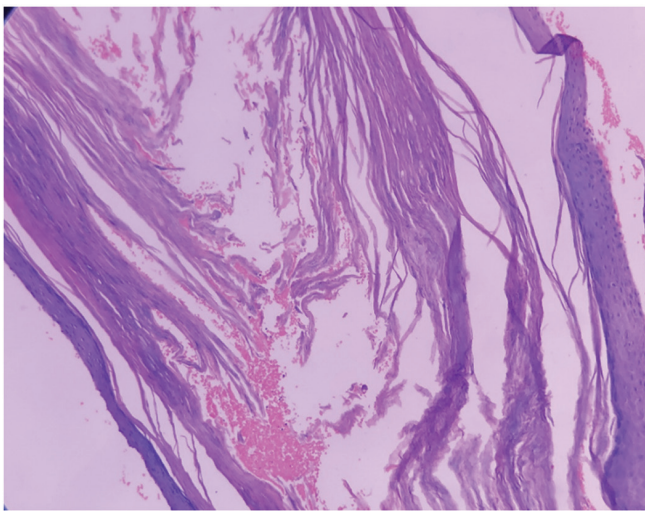


**Figure 4.** Minimal scarring seven months after sinusectomy

## Discussion

According to the United Kingdom Dog Grooming Association, pilonidal sinuses are a well-recognized

occupational hazard among groomers, and their members have encountered this condition in various areas -- subungual region, interdigital spaces of the hands and feet, the popliteal fossa and the breasts.<sup>5</sup> However, local literature reports on this condition among pet groomers, and guidelines to ensure practice of protective measures for this population of workers are currently lacking. This could be due to cases not being reported, unawareness of physicians of such condition, or affected groomers not seeking consultation.



**Figure 5.** Hyperplastic stratified squamous with an area exhibiting an epidermal inclusion cyst (H & E stain, 40x magnification)

Dog hairs are similar to human male-type hair, which has been reported to predispose to interdigital pilonidal sinuses among barbers.<sup>5,6</sup> Dog hairs are usually thick, stiff and straight, with minimal pliability.<sup>5</sup> During grooming, clipped hairs could be sharp as a needle, and there may be tile-like formation of the cuticle that can act as a barbed hook. The hairs may also have increased adhesiveness since these are usually moist and/or electrostatic.<sup>7</sup> Meanwhile, the interdigital space is susceptible to hair penetration because the epidermis in this area is very thin and easily irritated by shampoos or solutions routinely used by pet groomers.<sup>7</sup> These factors aid in easier penetration, adhesion, and accumulation of clipped dog hairs into the interdigital space causing a foreign body reaction and subsequent sinus formation.

In symptomatic disease, conservative approaches such as removal of hairs from the sinus, drainage of abscess, and antibiotic administration are not effective. Most authors agree that total excision of the involved tissue is curative.<sup>8-11</sup>

The clinical course is usually self-limited, but osteomyelitis and repeated infections may occur.<sup>2,5</sup> Treatment considerations include cost, healing period, scar tissue formation, and recurrence, with the latter being the most significant.<sup>4,12</sup> After pooling data from 16 studies, the recurrence rate of pilonidal disease was reported to be 6.9%.<sup>12</sup> Although scar tissue formation and a prolonged healing period may be observed with open healing by secondary intention after surgical intervention, this technique was reported to reduce the risk of recurrence by 35% when compared with any method of primary closure.<sup>4,12</sup>

Pet groomers should be advised proper measures to prevent formation or recurrence of a sinus. These methods include wearing gloves and prompt removal of embedded hairs during the working day.<sup>3,5,10</sup> In conclusion, since interdigital pilonidal disease is a rare condition, awareness among physicians would lead to accurate diagnosis, optimal treatment, and proper patient education.

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