Getting to the Root of Pseudofolliculitis Barbae

An interesting history to a common disorder — plus a look at the most effective treatments.

By Heather Woolery-Lloyd, M.D.

First reported in 1908, pseudofolliculitis barbae (PFB) is a common inflammatory condition caused by ingrown hairs in the beard area of African-American and Hispanic men who have tightly coiled hair. Fox first noted the condition, and it was later described as pseudofolliculitis of the beard by Strauss and Kligman in 1956. Present in up to 83% of African-American men, this condition is characterized by inflamed papules and occasional pustules in the beard after close shaving.

The neck is the most commonly affected site although the ingrown hairs and resultant inflammation can be seen anywhere on the beard. Post-inflammatory hyperpigmentation, scarring, and keloid formation may also occur. African-American women with hirsutism most commonly present with PFB localized to the chin after tweezing, shaving or electrolysis of the hairs. Pseudofolliculitis is also seen after shaving other areas of the body and is often observed in the bikini and axilla of women.

In the early 1970s, PFB became a significant problem in African-American military personnel because the Army enforced strict shaving requirements. Some servicemen who suffered from PFB were exempt from the no-beard requirements however, many feared the social stigma associated with beards in the army at that time. As a result, the Army has sought to improve education on the cause and treatment of PFB in military personnel.

Even today, PFB is a significant dermatologic complaint for soldiers and for African-American patients in other professions in which a close-shaven appearance is required.

Curved hair follicles to blame

This condition is due to the unique curvature of the hair follicle in affected patients. In contrast to Asian and most Caucasian hair in which the hair follicle is straight, in African-Americans the hair follicle is curved. Due to the curvature of the follicle, and the tightly coiled hairs, ingrown hairs are prominent. In African-American patients, the beard hair initially grows parallel to the skin surface so that when it is shaved, it’s cut at a sharp oblique angle. After close shaving, the sharply edged hair either re-enters the surface of the skin (extrafollicular penetration) or transects the follicle (transfollicular penetration) to form the ingrown hair. This ingrown hair elicits an inflammatory response, which leads to the papules and occasional pustules observed clinically. On pathology, neutrophilic inflammation predominates in the epidermis.

As the hair penetrates the dermis, inflammation increases and downgrowth of the epidermis occurs in an attempt to encircle the hair. A foreign body giant cell reaction can occur at the end of the penetrating hair leading to granulomas and fibrosis.

Similar conditions

The differential diagnosis of this condition includes a bacterial folliculitis of the beard also known as sycosis vulgaris. This condition presents with pustules of the beard that grow Staphylococcus aureus when cultured. Tinea barbae can also present with follicular papules and pustules on the beard. Clinical features range from a superficial crusted pustular folliculitis to intensely
inflamed boggy nodules with abscess formation. Fungal culture of these lesions grow *Trichophyton* species, most commonly *T. rubrum and T. verrucosum*. (For more information on tinea barbae, see this month’s “Derm Dx” column, which begins on page 86.) Additionally, some patients develop a traumatic folliculitis after close shaving with scattered 1-mm to 2-mm pink papules. However, this condition, commonly referred to as “razor burn,” is transient, resolves within 1 to 2 days, and isn’t caused by ingrown hairs.

**ESTABLISHING PROPER SHAVING TECHNIQUES**

There are many different approaches to the treatment of PFB. If patients are able to stop shaving completely, the condition resolves within several weeks, however, in most patients this isn’t a reasonable option.

In patients with mild to moderate disease, modification of shaving techniques can often alleviate symptoms. Many practitioners advocate the use of electric razors or clippers because these devices don’t allow for such a close shave, helping to prevent ingrown hairs from forming. For patients who opt to use conventional razors, the following suggestions can help to prevent ingrown hairs and resultant PFB:

- **Choosing the best razor.** After a warm shower or after the patient soaks his skin with warm water, he should use a foil-guarded razor to shave in the direction of hair growth, which generally is downward. Foil-guarded razors were developed specifically for PFB and have a foil guard covering approximately 30% of the blade. This prevents close contact of the blade with the skin allowing for a less close shave.

- **Avoiding skin stretching.** Additionally, patients should avoid stretching the skin while shaving as this leads to a closer shave and increases the chances of developing ingrown hairs.

- **Replacing razors.** Razors should be replaced frequently, and double bladed razors should be avoided.

- **Avoiding certain hair removal methods.** The use of needles or toothpicks to remove ingrown hairs is controversial. Although, if stubborn ingrown hairs are removed with care, this practice is helpful. The concern with this approach is that patients can often probe too aggressively, leading to further inflammation and secondary infection. A less invasive, but probably less effective method of releasing hairs is with a soft-bristled toothbrush or a rough washcloth.

- **Using depilatory creams.** Other methods of hair removal include depilatory creams. Depilatory creams can be effective and in preventing ingrown hairs. However, they’re often irritating for many patients so their use in PFB is somewhat limited.

**AFTER SAFE SHAVING HABITS ARE IN PLACE**

After appropriate shaving techniques have been established, other topical medications can be utilized in the treatment of PFB. The role of these medications is to prevent hyperkeratosis allowing for superficial ingrown hairs to be released from the skin.

Topical retinoids have been an effective adjunct in treating PFB. Alpha and beta hydroxy acids have also been utilized to decrease hyperkeratosis. Topical antibiotics are sometimes prescribed to prevent superficial infections. For patients who have significant secondary infection, oral antibiotics can be used.

Although the above recommendations are helpful in mild to moderate cases, patients with severe disease
often persist with symptoms despite strict adherence to treatment recommendations.

Until recently, we had little more to offer these patients. Hair removal lasers now offer these patients an alternative to laborious grooming practices to control their PFB.

LASER HAIR REMOVAL: A CURE FOR PFB?

With the introduction of laser hair removal, the treatment of PFB has dramatically changed. The long-pulsed diode laser was the first reported laser to have excellent results when treating PFB. Its only limitations are in very dark-skinned type VI patients where the risk of post-inflammatory pigment alteration is still possible. With the introduction of the long pulsed Nd:YAG laser for hair removal, patients with Fitzpatrick skin types V and VI have an option for safe and effective treatment for their PFB.

Results can be seen as early as 3 weeks after the first treatment. Additionally, after as few as two to three treatments, patients report complete resolution of papules. This is primarily because the initiating factor — the hairs — has been removed. The results with laser hair removal in the treatment of PFB are so significant that many military hospitals throughout the country have purchased the long-pulsed Nd:YAG to treat personnel with PFB.

The most often affected areas of PFB, such as the anterior neck and upper cheeks, are the most appropriate areas to treat with laser hair removal because the laser removes the affected hairs and redefines a new hairline.

However, limitations of laser hair removal occur when central areas of the beard are involved. For example, if a man has PFB prominent on his central cheeks or chin, the resultant alopecia after treatment may look unnatural when surrounded by normal hairs.

One way to combat this problem is to use lower energies so that just the ingrown hairs are removed, avoiding permanent alopecia. Other limitations include cost and access to these lasers.

Overall, new laser technology allows safe and effective laser hair removal in darkerskinned patients. This technology has provided an effective treatment option with dramatic results for patients with PFB.

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References