Folliculitis

Folliculitis is inflammation of the hair follicles.

Epidemiology

Prevalence
It is undoubtedly a relatively common condition in primary care. There are no reliable figures for community prevalence. It is thought to affect adults more than children, as more terminal hair follicles are present in adulthood. [1]

Aetiology
It can be caused by:

- Infection:
  - *Staphylococcus aureus* is the most common.
  - *Pseudomonas* spp. - occurring in outbreaks associated with hot tubs, paddling pools, etc. Causes intense pruritus, particularly in areas under a bathing suit. [2, 3]
  - Gram-negative folliculitis affects patients with a history of long-term antibiotic therapy for acne:
    - Pathogens include *Klebsiella* spp., *Enterobacter* spp. and *Proteus* spp. [4]
    - Malassezia folliculitis (previously called pityrosporum folliculitis) causes itchy acneiform eruption on the upper back, upper arms, chest, neck, chin and face, affecting younger patients.
  - Other fungal folliculitis:
    - Due to *Candida* spp. and *Trichophyton* spp.
    - Commonly in men, as tinea barbae in the beard area.
    - May also be caused by contact with dogs/cattle/other animals.
    - Resembles bacterial infection but may have a clearly demarcated flaking edge of confluent erythema.
  - Herpetic folliculitis due to herpes simplex viruses (HSV); often in men who shave near oral cold sore lesions.

- Immune system:
  - Eosinophilic pustular folliculitis; sterile and intensely itchy eruption associated with HIV infection.
  - Eosinophilic folliculitis (a rare autoimmune disease, more common in Asian races).

- Physical irritation - eg, traction folliculitis as a result of a hairstyle. [5]
- Chemical irritation of the skin (less commonly) - eg, from oily overalls.

The condition is due to obstruction or flow disruption in pilosebaceous glands ± infection. Furuncles are a more deep-seated infection of the base of the hair follicle, characterised by inflammatory nodules and pus formation, which may result from folliculitis. They may develop into carbuncles.

There can be a mixed picture of skin infection with co-existence of areas of folliculitis, furuncles, carbuncles and boils.

Risk factors
- Uncut beard.
• Shaving 'against the grain'.
• Particularly thick hair.
• Excessive friction from clothing.
• Overly tight-fitting clothing.
• Excessive sweating and hyperhidrosis.
• High external humidity.
• Pre-existing dermatitis.
• Reduced host immunity - eg, poorly controlled diabetes, immunosuppression.
• Nasal carriage of infecting strains of *S. aureus*.
• Skin abrasion/wound/abscess.
• Occluded skin - particularly for dermatological treatment with topical corticosteroids.

**Presentation**

It may occur as a relatively trivial irritation - superficial folliculitis, or as a more deep-seated process involving the lower hair follicle. Often the cause of superficial folliculitis is unclear. The most common infecting organism is *S. aureus*.[1]

Deep folliculitis is more clinically significant and likely to result in scarring.

**Symptoms**

These often start as a rash or a set of slowly evolving red lumps on the skin, usually on hairy areas.

• The rash may be pain-free or cause irritation and pruritus.
• There may be a desire to scratch.
• If mild and left alone, the rash usually resolves without scarring.
• Patients may notice small pustules at the centre of the lesions.
• Commonly affected areas are the axilla, beard, face, scalp, thighs and inguinal regions.[6]

**Signs**

• Check temperature and exclude signs of systemic toxicity.
• The central hair shaft may not be easy to see if hair is fine and/or fair; a magnifying glass can help demonstrate its presence.
• Erythematous papules form in a relatively regular, sometimes 'grid-like', pattern. Small pustules may be seen.
• Deep folliculitis tends to cause more erythema, becoming more confluent between the lesions, with no noticeable surface pustules and intense irritation of the skin. It can cause scarring, keloid formation and hair loss.
• Regional draining lymph nodes should be checked for adenitis, which is rare in simple or mild folliculitis. Folliculitis of the eyelash is known as a stye or hordeolum.
Differential diagnosis
Common differentials include:

- Keratosis pilaris.
- Insect bites.
- Contact dermatitis.
- Lupus or lupoid rashes.
- Milia.
- Lupus miliaris disseminatus faciei: rare chronic inflammatory dermatosis with red-yellow-brown papules on the central face.
- Perioral dermatitis.
- Reactive perforating collagenosis/perforating folliculitis.

**Investigations**

None is usually needed.

- If recurrent, send off swabs for culture from sites of staphylococcal carriage (family/fellow residents may need to be checked) and exclude diabetes mellitus.
- If there is atypical response to therapy or episodes are recurrent, consider punch biopsy, Gram-staining of skin swabs/scrapings, scrapings for fungal culture or potassium hydroxide test.
- Pustules can be deroofed with a scalpel and pus collected for Gram-staining and culture in severe or resistant cases.
- If HSV folliculitis is suspected then it may be worth sending vesicopustular fluid for viral culture to confirm the diagnosis.
- Cytology is being used by dermatologists increasingly frequently in the differential diagnosis of folliculitis.

**Management**

**General measures**

Avoid precipitating factors such as:

- Inappropriate clothing.
- High humidity.

Try to observe the following routine:

- Use moisturising shaving products and clean shaving implements with surgical spirit.
- Alternatively, reduce frequency of shaving and ensure shaving 'with the grain' (or grow a beard).
- Maintain good skin hygiene with non-allergenic cleaning agents.
- Use separate washing implements and towels from other members of the household.

**Pharmacological**

- Consider treating nasal carriage of *S. aureus* with topical Fucidin® in those with recurrent folliculitis.
- Mild, superficial folliculitis may resolve without treatment.
- Topical antiseptics such as triclosan, chlorhexidine or povidone-iodine may be used to treat and prevent superficial folliculitis.
- For deeper folliculitis, topical or oral antibiotics are usually required; preferred agents are flucloxacillin, erythromycin or cephalosporins/mupirocin ointment.
- In severe or recurrent cases, antibiotic therapy may be required for 4 to 6 weeks.
- Other antibiotics may be used depending on culture results and the degree of clinical suspicion of alternative causative organisms - eg, pseudomonal folliculitis responds to oral ciprofloxacin.
- Gram-negative folliculitis can be treated as for severe acne, with isotretinoin but use of isotretinoin is associated with major side-effects, including birth defects.
- Fungal infections are usually treated with topical azoles - eg, clotrimazole or oral ketoconazole.
- Aciclovir or similar agents can be used to treat herpetic folliculitis.

**Surgical**
Deep folliculitis can sometimes lead to the formation of carbuncles which may need incision and drainage.

**Prognosis**

Nearly all cases will resolve or respond to therapy without sequelae. Cases affecting the immunocompromised and those that are deep or recurrent are more likely to lead to complications.

**Complications**

- Recurrence.
- Scarring.
- Keloid formation.
- Development of furuncles and carbuncles.
- Abscess formation.
- Systemic illness secondary to spread of infection (rare but more likely in the immunocompromised).

**Further reading & references**

- Toner CB et al; Pseudomonas Folliculitis, Medscape, Jan 2012

1. Folliculitis; Med Quarterly 2011
4. Gram negative folliculitis; Demnet NZ, 2011
6. Singh-Behl D and Tomecki K; Common Skin Infections, The Cleveland Clinic
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<th>Author: Dr Laurence Knott</th>
<th>Peer Reviewer: Dr Helen Huins</th>
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<tr>
<td>Document ID: 2157 (v25)</td>
<td>Last Checked: 21/02/2013</td>
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<td>Next Review: 20/02/2018</td>
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