Superficial skin infections: causes, prevention and management in the pharmacy

Sumari Davis, BPharm
Amayezza Information Services

Introduction

The skin provides a good barrier against infections and although many organisms come in contact or live on the skin, they usually do not cause infection. When the skin gets inflamed or damaged by sunburn, scratching or other trauma, infection with bacteria, fungi or viruses can occur. This article discusses the causes and management of some of the minor skin infections most commonly seen in the pharmacy.

Factors that can increase the risk of a skin infection

Any break in the skin increases the risk of a skin infection. Advanced age, living in old age homes and walking barefoot at communal changing rooms such as at a gym, sport club or school can also increase the risk of getting infected.

Patients with the following conditions have a higher risk of getting skin infections:

- Diabetes mellitus
- Hepatitis
- Obesity
- Chronic skin conditions such as eczema
- Suppressed immune systems due to HIV, chemotherapy or use of certain medicines

If these patients develop a skin infection, it tends to be more severe than in healthy patients.

Types of skin infections

Skin infections can occur due to several different types of bacteria, fungi or viruses. The most common infections are listed in Table I.

Impetigo (bacterial)

Impetigo usually affects children between the ages of two and five years, but can also occur in older children and adults. The areas most affected include the face, arms or legs. This bacterial infection causes red bumps on the skin that turn into blisters. The blisters burst and scab over with a distinctive yellow, gold or brown crust. Sometimes, the blisters become painful sores that heal slowly. Patients with impetigo do not usually have fever, and if fever, severe pain, worsening

Table I. Summary of the most commonly occurring skin infections

<table>
<thead>
<tr>
<th>Bacterial infections</th>
<th>Fungal and yeast infections</th>
<th>Viral infections</th>
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<tbody>
<tr>
<td>Impetigo (<em>S. aureus</em> and sometimes <em>S. pyogenes</em>)</td>
<td>Athlete’s foot (tinea pedis)</td>
<td>Cold sores (herpes labialis caused by herpes simplex virus)</td>
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<tr>
<td>Folliculitis (infection of the hair follicle from hot tubs or swimming pools)</td>
<td>Beard ringworm (tinea barbae)</td>
<td>Warts</td>
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<tr>
<td>Furuncles (“boils”)</td>
<td>Scalp ringworm (tinea capitis)</td>
<td>Shingles</td>
</tr>
<tr>
<td>Carbuncles</td>
<td>Body ringworm (tinea corporis)</td>
<td></td>
</tr>
<tr>
<td>Cellulitis</td>
<td>Jock itch (tinea cruris)</td>
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<tr>
<td></td>
<td>Tinea versicolor</td>
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swelling and redness or loss of appetite is present, the patient should be referred to a doctor.

Less severe cases of impetigo can often be treated successfully with mupirocin or retapamulin cream or ointment. Treatment should continue for at least five days but not longer than 10 days without seeing a doctor.

Patients should receive the following information on how to prevent the spread of the infection to other contacts:
- Keep the affected areas covered with dry dressings
- Regularly wash the hands with soap and water
- Use disposable tissue paper to blow or wipe the nose and discard safely after use
- Do not share personal items such as towels, face cloths or hair combs
- Wash towels, bed linen and face cloths in hot water and dry them on high heat

**Table II. Summary of the most common tinea infections and treatment suggestions**

<table>
<thead>
<tr>
<th>Infection</th>
<th>Appearance and location</th>
<th>Suggested treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athlete’s foot (tinea pedis)</td>
<td>Itchy flaky skin affecting the web space between the toes, most commonly between the fourth and fifth toes</td>
<td>Topical antifungals such as terbinafine, clotrimazole, miconazole or ketoconazole. Terbinafine is more effective in preventing recurrence</td>
</tr>
</tbody>
</table>
| Scalp ringworm (tinea capitis) | Dry scaly patches on the head that may be itchy and/or cause hair loss. Hair shafts may break off at the skin surface or just above the surface leaving short stubs | Children: Oral treatment with griseofulvin* with antifungal cream and selenium sulfide shampoo  
Adults: Oral itraconazole or terbinafine* |
| Body ringworm (tinea corporis) | Round patches of clear red or pink skin surrounded by raised scaly borders that can occur on any part of the body | Topical application of ciclopirox or terbinafine |
| Jock itch (tinea cruris) | Rash usually starts in the skinfolds of the groin area and can spread to the inner thigh, has a scaly pink border and can be itchy and painful | Topical treatment with miconazole, ketoconazole or clotrimazole |
| Tinea versicolor | Does not usually cause symptoms, but patients with fair skin may develop dark scaly patches and patients with dark skin may notice lighter patches on the neck, trunk, abdomen and sometimes the face | Topical application of selenium sulphide shampoo to the skin (10 minutes a day for one week) or ketoconazole cream |

* On prescription only

That have missing patches of hair or a rash may have a tinea infection which requires treatment.

**Cold sores “fever blisters” (viral)**

Initial infection occurs mostly in children and often goes unnoticed. The virus then remains dormant in the nerve roots and can be reactivated by sunlight, wind, local trauma to the skin, menstruation or an infection such as a cold or flu. Physical and emotional stress can also serve as triggers for developing a cold sore. Patients may experience a tingling sensation or discomfort within 6–24 hours before appearance of a cold sore. Minute blisters appear on top of a red inflamed area mostly on the lips or face. Lesions are usually very painful and blisters break down to form raw areas with crusting usually by the fourth day, and complete healing within a week.

Starting treatment with aciclovir or penciclovir when the initial tingling and itching occurs can reduce the time the cold sore takes to heal. Patients with poor immunity, cold sores in the eye or sores that are painless, should be referred to a doctor.

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**Warts (viral)**

Warts occur most commonly as a raised flesh-coloured lesion with a rough surface on the back of the hands, palms or around the fingernails. Warts on the soles of the feet are pushed inwards due to pressure from the body’s weight and are called plantar warts. Warts have a network of small blood vessels that distinguish warts from corns and callouses. Warts on
other parts of the body such as the face or genitalia are best referred to a doctor for management.

Warts usually disappear as soon as the body develops immunity against the virus but this can take up to two years. Products for treatment of warts aim to reduce the size by gradual destruction of the skin and removal of the infected tissue within a period of three months. Salicylic acid and podophyllin should be used very carefully. Patients with diabetes should not be treated with products available over the counter as they may not always feel pain due to damage to the nerve endings and are also at risk of developing wounds that may not heal. These patients, as well as patients with poor immunity, should be referred to a doctor.

**Conclusion**

Skin infections can occur due to bacterial, fungal or viral infection after penetration of the organism through damaged skin. It is important to correctly identify the cause of the infection in order to recommend effective treatment. Severe or wide-spread infections and those not responding to topical treatment should be managed by a doctor.

**Bibliography**