Fungal nail infection (onychomycosis)

“Nurse, can I just show you this…. my nails are disgusting!”

Red Whale strikes again, what other course tells you all you need to know about fungal nail infections! Some might think this is trivial ailment, but even NICE take it seriously!

Here we look at this common general practice condition; the evidence below is taken from NICE CKS Fungal Nail Infection 2014 and a BMJ Review (BMJ 2014;348:g1800).

Key facts about fungal nail infections

Prevalence and incidence
- Fungal nail infection is common, with a prevalence of 4.3% in the UK. It can affect finger and toe nails and cause disfigurement of the nail, pain and skin infections. It is often associated with tinea pedis or tinea corporis.
- It is common in older people and rare in children. 33% of diabetics are estimated to have fungal nail infection and associated skin damage and infections. It is more common in immunocompromised people, and people with psoriasis and peripheral vascular disease.
- Predisposing environmental factors include occlusive footwear, warm and damp conditions, and nail trauma.

Prevention of fungal nail infections – prevention is better than cure

Although the evidence base is unknown, patients at risk of fungal nail infections, such as diabetics and those who are immunocompromised, should be advised that they can minimise risk by:
- Keeping hands and feet clean and dry, and wearing shoes made of natural materials, with clean cotton socks.
- Clipping nails to keep them short and not sharing clippers or scissors with other people.
- Not sharing towels and socks with other people, and ensuring towels are washed regularly.
- Not walking around barefoot in public pools and locker rooms.
- Replacing old footwear that could be contaminated with fungi.
- Treating athlete’s foot as soon as possible, to avoid the infection spreading to nails.
- Nail salon equipment can sometimes be the source – equipment used should be properly sterilised between uses.

Confirming the diagnosis
- Not all manky nails have a fungal infection! Diagnosis should be confirmed BEFORE starting treatment – by fungal microscopy/culture of clippings or scrapings.
- BUT 30% of scraping can yield a false negative; consider re-testing if negative cultures are returned.
- Other common possible differential diagnoses include:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Other associated features</th>
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<tbody>
<tr>
<td>Nail trauma</td>
<td>Single nail, distal damage, homogenous discoloration</td>
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<tr>
<td>Psoriasis</td>
<td>Pitting, leuconychia, skin features of psoriasis</td>
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<tr>
<td>Eczema</td>
<td>Ridged buckled nails, skin features, e.g. hand eczema</td>
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Treatment

Even with treatment, 16–25% do not achieve cure, and high levels of patient motivation are required since effective treatment may take months or up to a year.

Self-care alone may be sufficient for some people. This includes:
- Minimizing exposure to situations which predispose to the condition, e.g. warm damp conditions.
- Keeping nails short.
- Maintaining good foot hygiene.

Topical or oral medications may be required if walking is uncomfortable or if there is significant psychological distress.

Topical treatment lacquers are generally less effective than oral treatments but have fewer side-effects and interactions. They can be purchased OTC but are expensive. Lacquers can be considered in those with:
- Distal and superficial nail involvement affecting <50% of the nail.
- <4 nails affected.

Amorolfine 5% lacquer is the only available preparation in the UK. It should be applied once or twice weekly after nail filing for 6–12m! A recent RCT showed a clinic cure rate of 12.7% and mycological cure of 46.5% at 48w.

Oral treatment should be considered when:
- There is >50% involvement of nail plate.
- Multiple nails are involved.
- There is no response to topical treatment after 6m.

Here is a comparison of the different oral therapies:

<table>
<thead>
<tr>
<th></th>
<th>Itraconazole (2nd line)</th>
<th>Fluconazole (3rd line)</th>
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<tbody>
<tr>
<td><strong>Dose</strong></td>
<td>Pulse therapy: 200mg bd for a week then 3w off</td>
<td>150mg once weekly</td>
</tr>
<tr>
<td><strong>Length of therapy</strong></td>
<td>Hands</td>
<td>6w</td>
</tr>
<tr>
<td><strong>Feet</strong></td>
<td>12–16w</td>
<td>3 or 4 pulses</td>
</tr>
</tbody>
</table>
Given all of this, should we treat only if confirmed on scrapings and culture AND causing pain/significant problems? Remember to consider your local prescribing guidelines too.

**Referral to a dermatologist, or GPSI Dermatology**

Referral to a dermatologist may be required for:
- Uncertain diagnosis.
- Unsuccessful treatment.
- Immunocompromised people.
- Some children. For children, griseofulvin is the only licensed oral treatment. It is a Special Order drug which needs to be made to order, and 100ml may cost in excess of £150!! In addition to this, griseofulvin has lower efficacy and higher infection relapse rates. For this reason specialist referral is recommended for children who require consideration of treatment with one of the unlicensed drugs.

**DRUG DILEMMA: ketoconazole for fungal infections MHRA 2013**

Following an EU-wide review of the safety of *oral* ketoconazole:
- Oral ketoconazole should not be prescribed or used for fungal infections.
- This is because of increased incidence and severity of liver injury associated with ketoconazole compared with other antifungals.
- The benefits are never felt to outweigh the risks.
- This advice does not apply to topical preparations and shampoos.
- Review all patients taking this medication and stop it or choose an appropriate alternative.
**Fungal nail infection**
- Advise patients who are at increased risk about good skin hygiene to prevent fungal infection
- First check that what you are looking at really is a fungal infection!
- Warn patients that treatment is for months and success rates are modest and with significant recurrence rates
- Nail lacquers are less effective.
- Do not prescribe oral ketoconazole because of the higher risks of serious liver injury – review all patients taking this and stop it or consider an alternative.

**Professional development**
- Gory pictures of fungal nails, to help you recognise and differentiate:
  - [www.dermnetnz.org/fungal/onychomycosis.html](http://www.dermnetnz.org/fungal/onychomycosis.html)

**Practical tools**
- Information and advice for patients from the British Association of Dermatologists:

*We make every effort to ensure the information in these pages is accurate and correct at the date of publication, but it is of necessity of a brief and general nature, and this should not replace your own good clinical judgement, or be regarded as a substitute for taking professional advice in appropriate circumstances. In particular check drug doses, side effects and interactions with the British National Formulary. Save insofar as any such liability cannot be excluded at law, we do not accept any liability for loss of any type caused by reliance on the information in these pages.*

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*August 2016*
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