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Tinea capitis

Tinea capitis is the name used for infection of the scalp with a [dermatophyte](#) fungus. Although common in children, tinea capitis is less frequently seen in adults.

Hair can be infected with Trichophyton (abbreviated as "T.") and Microsporum ("M.") fungi.

In New Zealand, *M. canis* is the commonest dermatophyte fungus to cause tinea capitis. This fungus is zoophilic i.e. it grows naturally on an animal rather than a human. *M canis* tinea capitis is due to contact with an infected kitten or rarely an older cat or dog.

Other zoophilic fungi sometimes found to cause tinea capitis are:

- *T. verrucosum* (originating from cattle)
- *T. mentagrophytes* var. *equinum* (originating from horses)
- *M. nanum* (originating from pigs)
- *M. distortum* (a variant of *M canis* found in cats)

In the United States, *T. tonsurans* has also become a common cause of tinea capitis; this is passed on from one person to another as it naturally infects humans (i.e. it is anthropophilic). It frequently causes no symptoms and is commonly found in adult carriers.

Other anthropophilic fungi sometimes found to cause tinea capitis are:

- *M. audouinii*
- *T. violaceum*
- *M. ferrugineum*
- *T. schoenleinii*
- *T. rubrum*
- *T. megninii*
- *T. soudanense*
- *T. yaoundei*

Dermatophyte fungi sometimes originate in the soil (geophilic organisms). These rarely cause tinea capitis:

- *M. gypseum*
- *M. fulvum*

Types of tinea capitis infections

Tinea capitis is classified according to how the fungus invades the hair shaft.

Ectothrix infection

Ectothrix hair invasion is due to infection with *M. canis*, *M. audouinii*, *M. distortum*, *M. ferrugineum*, *M. gypseum*, *M. nanum*, and *T. verrucosum*. The fungal branches (hyphae) and spores (arthroconidia) cover the outside of the hair. Ectothrix infections can be identified by Woods light (long wave ultraviolet light) examination of the affected area the vet uses this to check your cats fur. The fur fluoresces green if infected with *M. canis*.

Endothrix infection

Endothrix invasion results from infection with *T. tonsurans*, *T. violaceum* and *T. soudanense*. The hair shaft is filled with fungal branches (hyphae) and spores (arthroconidia). Endothrix infections do not fluoresce with Woods light.

Favus

Favus does not occur in New Zealand. It is caused by *T. schoenleinii* infection, which results in a honeycomb destruction of the hair shaft.

Clinical features

Tinea capitis is most prevalent between 3 and 7 years of age. It is slightly more common in boys than girls. Infection by *T. tonsurans* may occur in adults.

Anthropophilic infections such as *T. tonsurans* are more common in crowded living conditions. The fungus can contaminate hairbrushes, clothing, towels and the backs of seats. The spores are long lived and can infect another individual months later.

Zoophilic infections are due to direct contact with an infected animal and are not generally passed from one person to another.

Geophilic infections usually arise when working in infected soil but are sometimes transferred from an infected animal.

Tinea capitis may present in several ways.

- Dry scaling – like dandruff but usually with moth-eaten hair loss
- Black dots – the hairs are broken off at the scalp surface, which is scaly
- Smooth areas of hair loss
- Kerion – very inflamed mass, like an abscess
- Favus – yellow crusts and matted hair
- Carrier state no symptoms and only mild scaling (*T. tonsurans*).

Tinea capitis may result in swollen lymph glands at the sides of the back of the neck. Untreated kerion and favus may result in permanent scarring (bald areas).

It can also result in an [id](#) reaction, especially just after starting antifungal treatment.

Tinea capitis: *Microsporum canis* infection



Kerion



Diagnosis

Tinea capitis is suspected if there is a combination of scale and bald patches. Wood's light fluorescence is helpful but not diagnostic as it is only positive if the responsible organism fluoresces, and fluorescence is sometimes seen for other reasons.

The diagnosis of tinea capitis should be confirmed by microscopy and culture of skin scrapings and hair pulled out by the roots ([see laboratory tests](#)).

Tinea capitis: Wood's light fluorescence



Treatment of carriers

If the child has an anthropophilic infection, all family members should be examined for signs of infection. Brushings of scaly areas of the scalp should be taken for mycology. Sometimes it is best for the whole family to be treated whether or not fungal infection is proven.

It is advisable for parents of classmates and other playmates to be informed so their children may be examined and treated if necessary. In some countries, infected children are not allowed to attend school. Elsewhere children with tinea capitis can attend school providing they are receiving treatment.

Carriers may have no symptoms. Treatment of carriers is necessary to prevent spread of infection. Antifungal shampoo twice weekly for four weeks may be sufficient but if cultures remain positive, oral treatment is recommended.

Suitable shampoos include:

- 2.5% [selenium sulfide](#)
- 1% to 2% zinc pyrithione
- Povidone-iodine
- 2% Ketoconazole

Treatment of tinea capitis

Tinea capitis requires treatment with an [oral antifungal agent](#). [Griseofulvin](#) is probably the most effective agent for infection with *Microsporum canis*, but is no longer available in New Zealand. Scalp *Trichophyton* infections may successfully be eradicated using oral [terbinafine](#), [itraconazole](#) or [fluconazole](#) for 4 to 6 weeks. However, these medications are not always successful and it may be necessary to try another agent. Intermittent treatment may also be prescribed e.g. once weekly dosages.

Related information

On DermNet NZ:

- [Tinea](#)
- [Introduction to fungal infections](#)
- [Laboratory tests for fungal infections](#)
- [Treatment of fungal infections](#)

Other websites:

- [Tinea capitis](#) - e-medicine dermatology, the online textbook

Books:

See the [DermNet NZ bookstore](#)

DermNet does not provide an on-line consultation service.

If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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