Definition: **ringworm** from *Philip's Encyclopedia*

Fungus infection of the skin, scalp or nails. The commonest type of ringworm is athlete's foot (*tinea pedis*). It is treated with antifungal preparations.

Summary Article: **Ringworm** from *Black's Veterinary Dictionary*

A contagious skin disease caused by the growth of certain fungi, which live either upon the surface of the skin or in the hairs of the areas affected. It also occurs in birds, but the crusty, flaky lesions are normally limited to the skin and do not appear to affect the feathers. Ringworm may affect any of the domesticated animals, but it is probably commonest in young store cattle when they are enclosed in buildings during winter, and in pet cats and kittens. Dogs and horses are also frequently affected, but the disease is not often seen in the sheep and pig in the UK.

Ringworm and favus (see below) in the domesticated animals are caused by parasitic fungi which belong to the family Gymnoascidae.

**Lesions generally**

Ringworm appears in the form of patches of dry, raised, crusty skin, from the surface of which the hairs have fallen and upon the surface of which there are scales or scabs. The patches are often more or less circular, but in bad cases large irregular areas may be produced, which result from the coalescence of adjacent areas. Favus is a type of ringworm seen in birds due to *Trichophyton gallinae*. Favus also affects the dog and cat, the mouse and rat, rabbits sometimes, and fowls occasionally. The lesions have cup-shaped depressions which bear some similarity to a honeycomb, from which they get their name (*favus*, honeycomb). The lesions are usually crusty and flaky and are normally limited to the skin and possibly the feathering can become infected.

**Horses**

Ringworm may be due to parasites belonging to the genera *Trichophyton* or *Microsporum*. In cases due to the former, the first affected areas are usually confined to the head, neck, withers and, sometimes, to the root of the tail. The hair becomes matted in patches about the size of a large coin, and in the centre of each patch appears a bare area from which the hair has fallen off; this gradually extends until the whole area is denuded. The skin becomes raised and scurfy, and greyish-white crusts are formed; at times there may be grey or yellow scales adherent to begin with, but becoming detached later. There is usually little or no itchiness, except when due to *T mentagrophytes*. When the horse is affected with ringworm due to *Microsporum* parasites, practically any part of the body may be attacked.

**Cattle**

Ringworm is nearly always due to *T verrucosum* infection. It is very common among young animals in autumn, winter, and early spring, especially if they are kept indoors. The head and neck are most often affected, especially the eyelids, lips, ears and above the jaws, but it may occur anywhere on the body. The lesion begins as a raised ring-like patch on which the hairs stand erect. In a day or so the hairs fall.
off, and the surface of the skin becomes covered with masses of scales heaped up into a greyish-white or greyish-yellow crust. The areas are usually very numerous and often become confluent, so that large areas become bare of hair and present roughened, crusty, hard, dry surfaces with a tendency towards pronounced wrinkling of the skin around and between them. Where calves are extensively affected with ringworm there is always a good deal of loss of condition and itchiness.

Sheep
When they are affected the fleece becomes matted, and falls out in circular patches over the shoulders, neck and chest. *T verrucosum* is one cause. Control is by isolating affected animals and disinfecting troughs, etc.

Dogs
Ringworm may be caused by one of four genera: *Trichophyton*, *Microsporum*, *Oidmella*, or *Oospora*, the last-named causing favus. The lesions produced by the first three of these are very similar in all respects to those seen in horses and cattle. In favus caused by *Oospora canina* the lesion appears as a raised circular patch upon whose surface there is a pale yellow crust with little depressions (honeycomb) scattered through it. The skin in such cases is often very much thickened.

Hedgehogs
Caused by *T erinacei*, this infection may cause lesions on the face of dogs where the skin has been damaged by the hedgehog’s spines.
The roughened appearance of an infected claw. Microsporum canis Bodin was responsible.

Cats

Ringworm is of three kinds: due to Trichophyton, Microsporum and Achorion, the latter producing favus. When due to the first two of these, the signs and lesions can be similar to those seen in other animals although often there are no obvious lesions. Wood’s lamp is of use but only indicates about half of the infections. (See ONYCHOMYCOSIS.)

Cats become infected from mice with mouse favus (A. quickeanum or A. arlongi), although it may also be due to A. schoenleinii — the favus of man. The lesions are chiefly confined to the fore-paws and the head and the neck, though they may spread to other parts of the body. Itchiness is usually absent. The areas affected vary in size from that of a pin’s head up to a 5p piece or so, and are not always regular in outline. The skin is thickened and the edges are raised. When newly formed, the covering crust is yellow and soft to the touch, but when old it is grey and powdery. The characteristic cup-shaped depressions are seen in most cases, but when affecting the claws they may be absent.

Ringworm due to M. canis Bodin is of public-health importance. It is often overlooked by owners, but children are readily affected.

A bare scaly patch on a kitten’s toe due to ringworm.

Cats, especially Persians and other longhairs, may be ‘carriers’ of ringworm fungus. In a survey involving 200 selected cats seen at a veterinary clinic, none of them showed any sign of ringworm. Fur samples

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taken with a brush showed that 39 per cent of the 200 were carrying spores of ringworm fungi. (In 72 samples the spores were those of M. canis) A survey in England of fur samples taken at four cat shows revealed that, overall, 35 per cent of longhairs were carrying M. canis spores.

Decontamination of households is important for human health after ringworm has been diagnosed. Hypochlorite, benzalkonium chloride, and glutaral-dehyde-based compounds are recommended.

**Favus in the fowl**
(honey comb ringworm), is due to T. gallinae, affects the comb, wattles and other parts of the fowl’s head.

If the condition spreads down to feathered parts, the feathers become dry and brittle, and break off at the surface of the skin, leaving large bare areas. There is always a most disagreeable odour from fowl favus.

**Treatment**

Oral administration of griseofulvin is by far the simplest method. Cattle and horses can be given a supplemented feed. This makes possible group treatment, and avoids handling of infected animals — thus reducing the risk of infection being transferred to man. However, it is inadvisable not to use griseofulvin in pregnant animals. In a cat itraconazole is available as an oral suspension, and thiabendazole (see ANTHELMINTICS) dip was successfully used.

Natamycin and enilconazole which are used as a wash or spray can be applied to infected cattle and horses with a knapsack sprayer. Ketoconazole, applied as a shampoo, may be used to treat dogs (not in the UK).

Otherwise, treatment consists, in the first place, of removing the hair from around the lesions, collecting it and burning it. There are many suitable dressings to choose from: e.g. gentian violet solution; undecylenate ointment; and copper naphthenate lotion, which has given rapid and good results in the

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treatment of ringworm in cattle. A vaccine for use in cattle is available.

Dressing should be carried out twice a week for a fortnight for cattle and horses, and by then most of the fungus will be killed. The cases should not be considered cured until there is a level crop of new hair over each of the areas. For the smaller animals it is better to use the dressing once every second day.

In all instances it is very important to remember that ringworm spreads from the centre outwards, and edges and margins of the areas should be especially well dressed.

**Vaccination of calves**

against *T. verrucosum* involves two intramuscular doses, 10 to 14 days apart. In Russia the vaccination of racehorses, and other horses taking part in competitive events, is compulsory.

**Public health**

Ringworm is readily transmissible to human beings, so precautions such as hand-washing and disinfection after contact with known infected animals should not be neglected. Dettol is useful for these purposes.

**Diagnosis**

Microscopic examination or culture methods. (See also WOOD’S LAMP.)

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