

DIAGNOSIS

For confirmatory diagnosis, deep skin scrapings are necessary to reach the mites deep in the follicles and glands.

Take a skin fold, apply a drop of liquid paraffin scrape until capillary blood appears.

Presence of a high proportion of larvae and nymph will indicate a rapidly increasing population and hence an active infection.

Skin biopsy has been used but it's rarely necessary.

TREATMENT

- Not readily accessible to topically applied acaricides. Thus repeated treatment is necessary. Do not expect rapid result.

In localized squamous mange recovery may be expected in 1-2 months but in generalized pustular form prognosis should be guarded when it indicates a recovery of about 3 months.

Before specific treatment, clip dog, wash with anti-seborrhoeic shampoo and dry thoroughly. Acaricides – Amitraz and organophosphate cythioate. Amitraz treatment has been shown to be successful using 1 or more applications at 14 days interval.

For mild and localized lesion apply acaricide topically. In severe pyoderma antibiotic therapy may be necessary.

Family : Sarcoptidae

Genus : Sarcoptes Scabiei

Spp : Sarcoptes Scabiei

The sole species of this mite occurs in a wide range of mammals but by biological adaptation "strains" have evolved which are largely host specific. Disease caused is called mange but in man it is referred to as Scabies/sarcoptic acariasis.

MORPHOLOGY

S. scabiei is a minute parasite, round in outline and up to 0.4mm in diameter with short legs which scarcely project beyond the body margin. Most important recognition characters are the numerous transverse ridges and triangular scales and the dorsum (not seen in any other mite of domestic animal).

LIFE CYCLE

Fertilized Female creates a winding burrow/tunnel in the upper layers of the epidermis, feeding on liquid oozing from the damaged tissues. Eggs are laid in this tunnels hatch in 3-5 days, and the six legged larvae crawl onto the skin surface. These larvae, in turn burrow into

the superficial layers of the skin to create small moulting pockets in which the moults to nymph and adult are completed. The adult Male then emerges and seeks a female either on the skin surface/in a moulting pocket. After fertilization the Females produce new tunnels either denovo (newly) or by extension of the moulting pocket. Entire life cycle is completed in about 17-21 days.

PATHOGENESIS

The parasites pierce the skin to suck lymph and may also feed on young epidermal cells. Their activities produce a marked irritation which causes intense itching and scratching which aggravates the condition. The resulting inflammation of the skin is accompanied by an exudates which coagulates and forms crust on the surface and is further characterised by excessive keratinization and proliferation of connective tissue with the result that the skin become more thickened and wrinkled.

SYMPTOMS

Sarcoptes prefers those parts of the body that are not covered by much hair e.g. face and ears of Goat, Sheep and rabbit, hock, elbow, muzzle, tail's root in dogs, head and neck in horses, sacral region and the neck in cattle and the back of pigs.

When the disease is allowed to spread, all parts of the body may eventually become affected.

Local symptoms: skin is more/less bare, thick and wrinkled covered with dry crusts. In fresh lesions there are red papules/vesicles and fresh exudates.

The lesion is exceedingly irritating and cause much biting and scratching.

SARCOPTIC MANGE OF DOGS

Usually, it starts as erythema, with papule formation affected by scale and crust formation and alopecia.

There is intense pruritus resulting in self inflicted trauma. After a primary infection dogs begin to scratch within 1 week often before lesions are visible.

Pruritus may be exacerbated by the development of skin hypersensitivity to mite allergens.

In cases of neglect of affected dog for months, whole skin surface may be involved, dogs becoming progressively weak and emaciated.

A strong odour is a notable feature of this form of mange.

USEFUL DIAGNOSTIC FEATURES OF CANINE SARCOPTIC MANGE

1. Edges of the ears are often first affected and on rubbing a scratch reflex is readily elicited.
2. Intense itching – so that in cases of dermatitis where there is no itching, sarcoptic mange can be eliminated as a possibility.
3. Contagious condition: Single cases are rarely seen in groups of dogs kept in close contact.

Confirmatory Diagnosis

- Examination of skin scrapings for the presence of mites.

TREATMENT AND CONTROL

Based on the protected location of the parasites, the duration of the Life Cycle and the necessity of killing all mites, dogs should be bathed weekly with an acaricidal preparation for four weeks/longer if necessary until lesions have disappeared.

Effective acaricides – Organochlorines, gamma BHC, organophosphate- phosphomet etc.

Many preparations are combined with a surfactant which aid contact with mites, by removing skin scales and softening crusts and other debris.

Because this is a highly contagious mange, affected dogs should be isolated and it should be explained to owner that rapid cure cannot be expected.

To contain an outbreak treat all the dogs with in the same premises (if possible).

In severely distressed dogs, oral/parenteral corticosteroids are available to reduce the pruritus and so preventing further excoriation.

SARCOPTIC MANGE OF PIGS

Ears are the most common site and are usually the primary focus from which the mite population spreads to other areas of the body especially the back, flanks and abdomen.

Mode of Transmission: Between carrier sows and their piglets during suckling/at service from an infected boar to gilts. Signs may appear on the face and ears within 3 weeks of birth later spreading to other areas.

CLINICAL SIGNS

Continuous scratching, loss of condition

Small red papules or weals (1st lesion) and general erythema about the eyes, around the snout, on the concave surface of the external ears, in the axillae and on the front of the hocks where the skin is thin.

Scratching leads to excoriation of these affected areas and the formation of brownish scabs on the damaged skin. Later become wrinkled, covered with crusty lesions and thickened.

Diagnosis

For confirmatory Diagnosis most reliable source of material for examination is ear wax.

Control and Treatment

Treat sow (main reservoir of infection) by she goes into favouring cratepen. Treat boars at 6 monthly intervals. Apply acaricide by wash or spray until signs regressed weekly. e.g. Amitraz, trichlorton + bromocyclen also systemic organosphosphate pour-on-phos met and injectable ivermectin. (300 ug/kg).

SARCOPTIC MANGE OF CATTLE

- Most severe of the cattle mange. It is a notifiable Disease in some parts of the world (e.g. Canada and some part of the U.S.A.)

The mites infesting cattle prefer the neck and tail regions through it may occur in any part of the body hence the name "neck and tail mange".

In mild infestation the skin are merely scaly with little hair loss but in severe conditions skin become thickened with marked loss of hair, crust formation on the less well-haired parts of the body.

Like other sarcoptic manges pruritus in intesnse leading to loss of meat and milk yield, downgrading of hides due to damage by scratching and rubbing confirmatory. Diagnosis

Through examination of the kin scrapping to demonstrate sarcoptes mites which are different from innocuous forage mites as well as the less harmful choriopetes. Also different the mite from the demodex group.

TREATMENT

- a. Repeated washes/sprays using gamma HCH.
- b. Single infection of ivermectin.
- c. Pour-on application (organophosphate) e.g. phosmet on two occasions at 14 days interval are not licensed for use in lactating animals whose milk are used for human consumption.

SARCOPTIC MANGE OF SHEEP

In Africa it occurs in the local breeds of haired sheep and de to hide damage it is of a considerable economic importance.

Sarcoptic mite of sheep unlike the non-burrowing genus psoroptes prefers region without-wool e.g. face, ears, axillae grain. It has a slow spread. Affected areas are initially erythematous and scurfy, intense pruritus +++.

Sheep scratch and rub the head, body and legs against trees, posts and walls.

Due to the itching, sheep are almost continuously restless; unable to graze thus there is emaciation. In haired sheep whole body may be affected.

TREATMENT and CONTROL

- Dipping in acaricide solution sheep should remain in bath for at least 1 minute and immersed in it at least 2ce.

Put them in clean pens before dipping.

-Ivermectin injection 2ce at interval of 7 days.

SARCOPTIC MANGE OF GOATS

Distribution : World Wide

Often a chronic condition. May be presented initially as just a "skin disease" for many months

Clinical signs: Irritation with encrustations, hair loss and excoriation from rubbing and scratching. In long-standing cases the skin becomes thickened and nodules may develop on the less well-haired parts of the skin – muzzle, around the eyes and inside the ears.

TREATMENT

Repeated treatment often necessary (several months in long standing cases).

Use of acaricide

Single injection of ivermectin highly effective corticosteroid therapy has been reported to aid recovery in that it suppresses pruritus.

Differential Diagnosis for (Sarcoptic) Mange

- (a) Dandruff – Skin is soft and phable. No parasite seen.
- (b) Ringworm infection – No thickening of the skin, fungi spores can be seen in the hair shaft.
- © Lice infestation – Lice produce crust and matting of hair but they are easily seen and skin is not thickened.
- (d) Psoroptic, notoedric and chiroptic mange – seen in other parts of the body and difference in the appearance of the parasites.

(e) Demodetic mange – pustular/squamous kind Demodex is easily recognized.

(f) Harvest mites – scaly lesions are seen, hair fall out and are found mainly on the heads of animal that run on pasture, skin is soft and the mites (larvae forms) have a scarlet-red color.

Notoedres

N. cati – cats and rabbits (seen occasionally as temporary parasite of dog).

N. muris – rabbits and cats

Affects mainly the ear of the host extending to the head and back.

In advanced stages, lesions extend to back and foot lesions may cover the whole body in young animals.

N. muris ; lesions are on nose and ears. In advanced (face and head in rabbits) cases lesions may spread to feet, tail and perineum.

Distribution : WW

Morphology

Resembles Sarcoptes – having a circular outline and short legs but is distinguished by its concentric thumb print” striation and absence of spines.

LIFE CYCLE

Similar to sarcoptes except that the Female in the dermis do not occur singly but are found in clusters known as “Nests”.

CLINICAL SIGNS

- Dry, encrusted scaly lesions on the edges of the ears and on the face, the skin is thickened and somewhat leathery.

- Intense pruritus.

- Severe excoriation of the head and neck due to scratching.

* Lesion is seen first on the medial edge of the ear pinna, and then spread rapidly over the ears, face, eyelids and neck.

May spread to the feet and tail by contact when the cat grooms and sleeps.

Diagnosis

Based on host involved

Intense pruritus, lesions location and rapid spread to involve all kittens in a litters.

Confirmatory Diagnosis

Presence of mites in skin scrapping

(A single next scrapping may yield many mites).

TREATMENT

Soften skin crust with liquid paraffin/soap solution before using acaricide..

Give treatment at 4-6 weeks interval (prognosis good).

CNEMIDOCOPTES (KNEMIDOCOPTES)

-only burrowing genus of domestic birds.

Hosts: Poultry and cage birds

Distribution: WW

Spp : condition provided by each species has been given a descriptive common name.

C.mutan poultry "scaly leg"

C. gallinae poultry "depluming itch"

C. pilae cage bird "scaly face", "tassel foot"

Morphology

- Circular body and short, stubby legs and the avain hspot are sufficient for generic diagnosis.

Life cycle Similar to Sarcoptes, Fertilized Female burrow into the dermis and lay eggs in tunnel.

In C. gallinae, mites burrow into shaft of the feather leading to inflammation and itching which in turn lead to pecking. Affected birds swallow falling feathers, egg production falls, infection is by contact.

C. mutans burrow into epidermal scales from tibiotarsal downward and as far as downs of the toes leading to inflammation. Scales are displaced from normal position with progress of the infection, a dry crust accumulates under the scale, and gland of pedipalp secretes irritant materials which stimulates exudation of serum which contributes to scaly nature of the legs. After, several months, legs become covered with dirty yellow crust. Vesicles can be found in those places and they are covered and filled with tissue fluids. The flexion of joints become difficult because of crust and the bird became lame.

Birds peck the crust due to irritation, egg production reduces in laying birds and in advanced stages death occur due to starvation and thirst. This is common in poorly kept birds.

K. pilae is most often seen in budgerigars because of their popularity, but other psittacines (e.g. parrot, parakeet, cockatiel) and finches (e.g. canary) are equally susceptible.

K. pilae attacks bare and lightly feathered areas including the beak, head, neck, inside of the wings, legs and feet. The mites are deep in the skin, but unlike *Sarcoptes* cause little pruritus lesion develop slowly, over a number of months.

Infection may be inapparent for sometime until precipitating factors such as chill/movement to a strange cage occur which help to increase the mite population.

Changes are first seen on the head with scales at the angle of the beak which spreads over the face ("scaly face") affecting the core and horny tissue of the beak. Beak may become distorted due to the mites burrowing in the matrix and crossbeak may develop.

When the limbs are affected an extreme form of scaly leg may develop and toes may slough off in severely affected birds.

TREATMENT

(a) Acaricides: applied by spraying/dusting with the undersides of the wings thoroughly attended to.

(b) Dip 'scaly leg' in acaricide solution. Repeat severally at 10 days interval.

© Thorough clearing of poultry house, perches and nesting boxes by acaricide spraying. For caged birds apply the acaricide locally.

Psoroptes

Host : Sheep, Cattle, Equines

Spp : *Psorptes ovis* Sheep & Cattle

P. equi equines

P. cuniculi equines & rabbits

Distribution : World wide

Morphology

Psoroptes is a typical non-burrowing mite, up to 0.75mm, oval in shape with all the legs projecting beyond the body margin. Most important recognition features are the pointed mouthparts, rounded abdominal tubercles of the Male and the 3-jointed pedicels bearing funnel shaped suckers on most of the legs.

LIFE CYCLE.

Female lays about 90 eggs during her life time of 4-6 weeks development (egg-adult) takes about 10 days. Pathogenicity of this mite is attributable to the fact that unlike most non-burrowing mites, it has piercing and chewing mouthparts which can damage the skin severely.

SHEEP SCAB (Psoroptic mange of sheep)

LIFE CYCLE

Eggs are laid on the skin at the edges of the lesion and hatch normally in 1-3 days. Eggs separated from the skin by crust may hatch in 4-5 days.

Larva feed and 2-3 days after hatching moult to the nymphal stage (passing the last 12 hours in a state of lethargy. Nymphal stage last 3-4 days including a lethargic period of 36 hours before the moult occur. Smaller nymphs usually become Male. As a rule pubescent Females appear before the Males. Sometimes as soon as about 6 days after hatching while the Male do not appear before the 6th day.

Copulation begins soon after ecdysis and lasts 1 day being shorter when Females are more than Males.

The pubescent Female moults 2 days after the commencement of copulation and the ovigerous Female begins to lay 1 day later or 9 days after hatching the egg.

Female lives 30-40days and lays about 5 eggs/days or a total of 90/more. Male lives up to 34 days on the host

Pathogenesis

Mite puncture the epidermis to suck lymph and stimulate a local reaction in form of a small inflammatory swelling richly infiltrated with serum. The latter exudes on to the surface and coagulates thus forming a crust. The altered conditions cause the wool to become loose and to fall out or it is pulled out by the sheep in biting and scratching the lesion which itches severely. The bare crusty patches are unsuitable for the mites, which therefore migrate to the lesion's margin thereby extending the process outwards. The diseased skin condition and may be the constant irritation, lead to progressive emaciation and finally death of the sheep.

Clinical signs

Scab lesion may occur on all parts of the body that are covered with wool/hair but could be seen frequently around the shoulders and along the sides of the body in woolled sheep and along the back, the sternum and the dorsal aspect of the tail in hairy sheep.

In young lesions the wool is disturbed over the lesion by biting and scratching of the sheep and it usually has a lighter color than the surround wool.

A lesion of 2-4 days old appears as a small papule about 5mm diameter with a yellowish color and a moist surface, mites will as a rule be found on the affected spot.

From the fifth day upwards the exudates begins to coagulate, forming pale yellow crusts and the lesion extends outwards as the number of parasite increases.

Older lesions are detected on account of loss of wool and presence of scab, while mites are producing fresh foci in the surrounding covered parts.

At times large portion of the body may be affected around an old lesion without showing on the surface. If the wool is opened it is found to be matted together above the skin by scabs, underneath with numerous parasites are located.

DIAGNOSIS

Initially based on the season of occurrence and signs of wet, discoloured wool, debility and intense with an easily elicited nibbling reflex.

Confirmatory diagnosis – identification of the mites. Scrape materials from the edge of the lesion, place in warm 10% KOH and examine Microscopically

Differential Diagnosis

Chorioptes mites infestation (harmless)

TREATMENT and CONTROL

Plunge dipping of sheep in acaricide

2 treatment with injectable ivermectin at 7 days intervals.