



Skin protocol

Shelter medicine goals in relation to skin disease

- To have cats in CP care for the minimum time possible
- To be able to give prospective owners full disclosure of the tests carried out and possible future outcomes including the likelihood of recurrence
- To reach a stable state of management for incurable cases so that they can be made fit to home with an appropriate ongoing treatment plan
- To avoid the use of buster collars for a prolonged period of time in care
- To make prompt identification of infectious disease, in particular that which is contagious or zoonotic, to prevent spread within the shelter and to protect human health and the shelter's public reputation

Skin disease – advice for staff and volunteers

This section of the skin protocol contains advice for employees and volunteers working with cats with skin conditions in our centres and branches. Skin disease comes in a vast array of manifestations and is a common occurrence. While some conditions can be easy to treat, others may be more challenging to get under control, and there are some important conditions that can be spread to humans, such as ringworm and tuberculosis. Due to the potentially serious nature of some skin conditions it is vital to know when to get the cat you are caring for checked over by the vet. Signs that the cat in care needs veterinary attention are as follows:

- hair loss
- red or broken skin
- pustules or crusty lesions
- any lump that is present within the skin
- any discharging area or non-healing wound
- itching, scratching or excessive grooming that goes on for longer than 24 hours

Ear disease is often a manifestation of skin disease present in the ear and is a relatively common problem in cats coming in to CP care. A small amount of black discharge is normal and does not require cleaning but cats with the following symptoms should be presented to the vets for examination:

- head shaking or scratching of ears
- pain around the ear or the head
- green/yellow/blood tinged or smelly ear discharge
- excessive black discharge
- ears that look red or sore
- head tilt

- unequal pupil size
- noisy breathing (seen generally in relation to polyps)

A thorough examination of the ears is required. Therefore, if there is a lot of discharge or it is very painful, your vet may advise this needs to be done under general anaesthetic. In some cases, x-rays and a swab to culture bacteria and yeasts will be required.

The use of buster collars in skin disease

While we appreciate the need for buster collars in the treatment process of skin disease, it is important that cats in care are not wearing these collars for more than six weeks. Protracted use of buster collars represents a welfare compromise. In cases where buster collars are still required after six weeks of treatment we recommend discussing the case with the Veterinary department/Field Veterinary Officer (FVO). If possible, please consider daily, strictly supervised time without the collar, in order to enable the cat to carry out its normal behavioural needs. Please also consider the different options for buster collars including the soft collars or inflatable collars.

The role of behaviour in skin disease

We know many different factors lead to the development of skin disease and the stress of the shelter setting will often play a major role. Doing as much as we can to reduce stress and providing opportunities for cats to exhibit their natural behaviour is therefore of paramount importance. We can encourage natural behaviour through feeding enrichment, appropriate toy play and the provision of suitable scratching facilities. If you suspect that there is a behavioural element to the skin disease it may help to review the environment the cat is in. Sights, sounds and smells of other cats are a common cause of stress so looking at ways to reduce the impact of these can really help. Taking a proactive step to improve welfare around environment and behaviour early on is advised. Synthetic pheromones such as FELIWAY® can be very helpful, and in some circumstances considering the use of an enrichment room or moving to a quieter part of the centre can be helpful. Always ensure that your vet is consulted first over concerns about skin conditions. After this consult the 'common behavioural problems' section of *The Behaviour Guide* or ask the Behaviour team for advice on reducing stress.

Treating ear and skin disease

The majority of ear conditions and some skin diseases will need the direct application of treatment, either into the ear or onto the skin. Your vet should advise you how best to apply these, for the application of ear medication there is a guide at the back of this protocol that details the recommended technique.

Skin disease – advice for vets

The following part of this protocol is designed for vets working with cats in Cats Protection care. The shelter environment poses certain challenges when it comes to the management of skin conditions. Diseases such as ringworm that rarely cause problems in owned cats can be of greater significance in shelters due to factors such as stress, stocking density and the high turnover of cats within the facility. There are a number of skin diseases that are also of concern as they are zoonotic – the health of our employees and of potential adopters must also be taken into account when considering treatment options for these cats. Understanding

how we explain to future owners the management of the disease and the likelihood of its return is also important.

Skin disease with signs of concurrent systemic disease

The skin disease flow chart is primarily aimed at dermatology cases in otherwise well cats. If a cat presents with skin disease in conjunction with signs of systemic disease such as polyuria/polydipsia, polyphagia or weight loss then investigate for signs of systemic disease as appropriate. In these cases refer to other disease protocols as required e.g. the hyperthyroidism flow chart. These can be found on the 'For vets and nurses' page on the Cats Protection website. <https://www.cats.org.uk/cat-care/vets-info>

Feline leukaemia virus (FeLV) and Feline immunodeficiency virus (FIV) infections have been associated with skin disease commonly via immunosuppression. Hyperthyroidism, Cushing's and Diabetes Mellitus can also cause problems, such as recurrent infection and changes in the skin and coat quality. Scaling of the skin is common in these cases.

Certain neoplasias can also be associated with skin disease. Lymphoma and squamous cell carcinoma are the more common skin cancers seen in cats. More rarely smooth generalised alopecia is associated with Thymoma while exfoliative dermatitis is seen with Pancreatic or Hepatic Carcinoma. While these causes of skin disease are less common they are important to consider in cases which appear unusual and do not respond to the expected treatments.

Feline herpesvirus dermatitis (FHV) is a chronic ulcerative skin disease with single or multiple lesions which enlarge slowly over time, affecting the lateral aspect of the nares and periocular skin but sometimes the front legs too. This typically appears as a chronic manifestation of active FHV and maybe associated with chronic upper respiratory signs. It is also worth considering that Feline Calicivirus can also cause skin lesions in rare circumstances.

Zoonotic skin disease

Zoonotic skin disease in the shelter environment can be of great significance. It is of paramount importance that we keep our employees and volunteers safe when looking after our cats. Full personal protective equipment (PPE) must be worn on handling a cat with a suspected zoonosis and it should be placed in isolation. A cat with a zoonotic disease must not be homed until the zoonosis has been cured. Unfortunately, in the case of mycobacterial infection this results in unacceptably long stays in care, with hugely negative welfare implications for these cases. For this reason cases of mycobacterial infection should be euthanased on welfare grounds.

Examples of possible zoonotic skin diseases seen in cats in care are:

- **ringworm** – more information can be found on ringworm in the ringworm procedures document These can be found on the 'For vets and nurses' page on the Cats Protection website. <https://www.cats.org.uk/cat-care/vets-info>
- **mycobacterial skin infections** – as a significant zoonosis, mycobacterium bovis and other species of mycobacterium should always be considered in cases of skin disease – in particular cases where there is lymphadenopathy, nodular cutaneous lesions which may ulcerate or fistulate, or if there are other concurrent signs related to the gastrointestinal or respiratory systems. Cats can be infected through hunting, ingestion of unpasteurised milk and raw meat (so particular attention should be paid

to any cat previously fed a raw diet). If there is concern that mycobacterium is involved, we would recommend taking a biopsy and asking for a Ziel Nielson stain to be performed. It is a good idea to freeze a small section of the mass so it can be sent for culture if necessary. The Veterinary department (branches) or your regional field veterinary officer (centres) must be made aware straight away of any concerns of mycobacterial infections. For more information on mycobacterial disease please see the Tuberculosis protocol and the appendix of this document These can be found on the 'For vets and nurses' page on the Cats Protection website.

<https://www.cats.org.uk/cat-care/vets-info>

- **Feline pox virus** – the majority of cats contracting pox viruses are hunters and the infection begins as a bite wound on the head or leg. Most commonly these cases present as ulcerating, crusting nodules that can be several millimetres in diameter but can also include papules and larger areas of cellulitis or abscessation. Lesions can spread to other parts of the body. Systemic symptoms are present in around 20% of cases. The disease can be diagnosed with immunohistochemistry along with PCR and virus isolation on dried scab material. If you suspect pox virus, it is important not to treat with steroids, as this can cause severe systemic infection that is often fatal. Antibiotics and supportive treatment can help. The risk of this disease as a zoonosis is significant, particularly in immunocompromised individuals. For more information on dealing with pox virus please see appendix or contact the Veterinary department or the FVO

Non-zoonotic skin disease

Diagnosics in skin disease

A number of simple clinical tests can be carried out within the shelter medicine environment without the need for external laboratory testing

Clinical test	Aetiology
Wet paper test	Fleas
Coat brushings	Fleas, lice, cheyletiella
Skin scrapings	Demodex, scabies
Surface cytology	Demodex, bacterial infections, Malassezia
Pustule cytology	Bacterial infections, pemphigus foliaceus

Parasitic skin disease

External parasites play a large role in dermatological disease. Fleas are the most common cause of skin problems. Ectoparasitic treatment should be applied regularly while in care to decrease environmental contamination and transmission to other animals and staff. Harvest mites are a recognised cause of skin disease in cats in some areas in late summer and autumn. These tiny orange dot-sized mites are visible to the naked eye, and are usually found between the toes and in Henry's pocket of the ear flap. Other mites, such as demodex, are uncommon in cats but shouldn't be forgotten as a differential diagnosis, skin scrapes should be considered to rule these out.

Microbial skin disease

- Pyoderma is a group of secondary diseases usually involving staphylococcal bacteria with many different underlying causes e.g. poor grooming, allergy, metabolic or hormonal disturbances
- Malassezia – any breed of cat can be affected by a yeast infection. However, Malassezia is most commonly found in the Devon Rex and Sphynx breeds. It is a yeast which can be found in 10-20% of healthy cats. There are three major syndromes which have been reported with its overgrowth:
 - otitis externa: Can accompany other causes of otitis or maybe the sole pathogen. This is the most common presentation of Malassezia.
 - seborrheic dermatitis: caused by generalised Malassezia dermatitis which is uncommon but has been reported. This leads to variable degrees of pruritus and greasy skin, with brown exudate often around the nail beds.If local infections are present, topical antifungals can be tried. For more severe disease, systemic treatment is likely to be more effective eg Itraconazole alongside the use of antifungal shampoos.

Allergic skin disease

Chronic pruritic skin disease due to allergy is common. Cats may have been relinquished in to care due to this, sometimes due to the frustration associated with managing the condition or due to the economic burden of treatment.

Cats which remain in the clean shelter environment for a long period of time may have symptoms that subside. However, it is not uncommon for these symptoms to reappear after homing when they encounter the allergens associated with domestic environments again. Pruritus can be difficult to observe in the cat, and one or more of the four cutaneous reaction patterns often indicates the presence of self-trauma but aren't pathognomonic for allergy. Allergic skin disease can be divided in to three major groups:

- **hypersensitivity to ectoparasites:** flea allergy dermatitis (FAD) is the most common cause of skin disease in cats. Affected animals develop allergic reactions to chemicals in flea saliva. Symptoms of this reaction include erythema, papules, pustules, and crusts. The itch associated with just one flea bite persists long after that flea is gone and leads to significant self-trauma. The aim of treatment is to relieve the allergy-induced itch and to remove the fleas from the cat and the environment. In some cases, secondary bacterial or yeast infections will also need treatment before the itching subsides. As FAD requires consistent flea control measures this will be achieved through the regular application of flea treatments while in care. Cats Protection currently recommends the use of Stronghold as a flea treatment. Flea treatments should always be applied under veterinary instruction. In a shelter setting the environment is already more sterile and parasite free than a home environment with strict cleaning practices, regular parasiticide treatment and regular

hot washing of bedding. For a cat that presents with FAD that is either non-responsive to flea control alone or is very pruritic on presentation, consider a course of corticosteroids eg 1-2mg/kg prednisolone SID/BID for one to two weeks. Taper the steroid dose to the lowest effective dose and declare on the cat's medical summary this condition, its treatment and that reoccurrence is possible

- **cutaneous adverse food reaction:** cutaneous adverse food reactions comprise both food hypersensitivities (mediated by the immune system) and food intolerances (not involving the immune system). Clinical signs are variable involving both cutaneous and gastrointestinal signs, although it is commonly a non-seasonal pruritus, which is anecdotally poorly responsive to steroids. It could be argued, that all our skin disease cases should be put on a diet trial early on in the work-up process. However, it is our aim to introduce interventions as a sequential process in the hope of rehoming the cats with the fewest ongoing requirements for a new owner to undertake. Therefore, diet trials should be considered only after investigation and treatment of parasitic or infectious causes and if non-responsive to the initial course of steroid treatment. If the cat is still non-responsive after the diet trial it is advisable to speak to the FVO/Vet department. If stabilisation is not achievable within eight weeks and the cat is still not classed as fit to home, euthanasia may need to be considered. If the cat is managed on a specific diet or is unable to tolerate certain things in its diet this should be declared on the medical summary form
- chin acne: this is a common condition and appears as comedones on the chin. It is usually caused by the overgrowth of commensal bacterial but *Malassezia* may also play a role. This can be treated by cleaning the area regularly with hibiscrub
- **Atopic dermatitis:** immune mediated hypersensitivity to specific environmental allergens such as pollen and house dust, and it may be a potential cause of pruritus. These cases are difficult to diagnose, and it is unknown whether there is an inherited component to the disease. In four out of five cases otitis externa is a concurrent finding.
 - While allergy testing can be performed on cats (for example intra-dermal skin tests) the results are rather unreliable. Blood tests are also offered by some laboratories to 'diagnose' atopy and the underlying cause of the allergy, but these are less reliable than skin tests, and both false positive and false negative tests are well recognised. Therefore, neither the intra-dermal skin tests nor blood tests are deemed an appropriate diagnostic test for a cat within CP care
 - As treatment with essential fatty acids and anti-histamines is successful in only a minority of cases, we advise starting these cases straight on corticosteroids. It is important to try and establish the minimal level of glucocorticoid treatment needed, to keep the patient comfortable and stabilised for homing. Other immunosuppressive drugs such as cyclosporin should not be used within the CP setting as they are extremely costly and often ineffective, and this may prolong the time a cat remains in care
 - If a cat requires ongoing medication once stable, this should be declared on the medical summary form. If the condition resolves while in care it should still be declared and reoccurrence marked as possible

There is no single diagnostic test to determine if an animal has one of these conditions and they can co-exist. The diagnosis is a process of elimination.

Immune mediated disorders

These disorders are generally rare in cats, with pemphigus foliaceus being the most common. Clinical signs include; crusting skin lesions which start over the ears and face with later involvement of the trunk and limbs. Paronychia (nail bed infection) is also a common finding. Pruritus is absent to severe, with intermittent depression, pyrexia and anorexia also reported. The clinical signs may be suggestive, but a diagnosis requires identifying acantholytic keratinocytes. This therefore requires a biopsy to be sent for histopathology. Cases which don't respond to the standard treatment of antibacterials and prednisolone, are unlikely to be stable enough to rehome, and so euthanasia may need to be considered. Other, rarer immune mediated skin conditions include systemic lupus erythematosus, discoid lupus erythematosus and cutaneous drug eruption.

Mass in skin/subcutaneous tissue

The approach to masses within a shelter environment may be different to that within private veterinary practice. Once a mass has been discovered, it should be surgically excised and sent for histopathology. Unlike an owned cat, we don't want to spend time monitoring a mass for any changes as it will increase the time a cat spends in care. With histopathology, we can give any prospective new owner a better understanding of the future implications of the mass. A benign mass that is completely excised should be declared on the medical summary sheet. If histopathology comes back with a malignant diagnosis then please speak to your FVO or the Veterinary department.

Ear disease

A list of the most common ear conditions with suggested treatment options is included in the following table:

Condition	Diagnosis/clinical signs	Treatment options	Special considerations
Ear mites	Diagnosis by otoscopic examination. The presence of clinical signs is sufficient to start treatment. Consider other parasites of the ear area, such as harvest mites as well.	Stronghold spot on in combination with seven days Canaural. Reassess after seven days, if still concerned, stop Canaural and restart seven days later.	Treat all in-contact animals even if there are no clinical signs. Home once settled. Record on the Medical Summary but mark as resolved, reoccurrence unlikely.
Polyps	Generally in younger cats. Diagnose by visualisation in ear or pharynx. Radiography may also be useful.	Removal by traction followed by a course of steroids may be effective in some cases although reoccurrence cannot be ruled out. Either a TECA or ventral bulla osteotomy may be indicated. Surgery should be reserved for healthy, FeLV/FIV negative cats.	If bilateral surgery is required please contact your FVO. Record on the Medical Summary, and mark as resolved but reoccurrence possible (if traction is the treatment option) or unlikely (after successful surgery).
Otitis externa	Diagnosis is based on clinical signs. Where possible, in-house cytology should be performed. If rod shaped bacteria are present, then send for culture and sensitivity. Normally a secondary symptom, so try to find underlying cause. Test for FeLV /FIV.	Treat underlying causes where possible. Unless contraindicated by culture and sensitivity Canaural would be first line treatment.	Home once active infection gone and underlying issue resolved if possible. If unable to correct underlying issue recurrence is likely and should be stated on the Medical Summary.

Otitis media	Can be present with or without otitis externa. X-rays may be helpful to diagnose. Rule out polyp. FeLV/FIV test.	Myringotomy and flush the middle ear. Culture any discharge obtained during myringotomy. A prolonged course of antibiotics may be required (at least six weeks).	Treatment may not be practical for cats which are not coping in care, or with multiple problems due to prolonged treatment times. Contact FVO if concerned. A possible risk of reoccurrence should be noted on the Medical Summary.
Ceruminous gland hyperplasia	Diagnosis on otoscopic examination. Rule out underlying disease such as allergy.	Mild cases may respond to regular cleaning. In more severe cases surgery may be indicated. Surgery should be reserved for cats with no other major health issues.	Speak to FVO if bilateral surgery is required. Unless a TECA is performed reoccurrence should always be considered likely.
Allergic skin disease	Pruritus and excess wax production may be a sign of allergic skin disease. It may occur in the presence of other skin signs or can be the only sign.	See skin disease flow chart and information above.	See skin disease flow chart and information above.

APPENDIX

1) Feline pox virus:

Background information:

Cats are most commonly infected with cow pox which is an orthopox virus, but occasionally they can be infected with the orf virus which is a parapox virus. Cow pox is a rare disease of cattle who are thought to be accidentally infected from the reservoir hosts – small rodents including voles, wood mice, squirrels etc.

Most infected cats are adults, often from a rural environment, and the cats are often reported as active hunters. The infection begins as a bite wound on the leg or head, and is most often prevalent in the autumn months as this is when the wild rodent population is at its maximal size and most active.

Cat to cat transmission is rare, but there is a small but significant risk of cat to human transmission.

Clinical signs:

The clinical signs are localised to generalised skin lesions of variable form. The lesions can be small papules or nodules or can present as large areas of abscessation or cellulitis. The lesions start on the leg and then spread to other parts of the body, with the head and neck often affected. Ulcerated nodules that crust are the most typical lesions, but secondary bacterial infections can occur. The nodules are often several millimeters in diameter, which crust and ulcerate. Over a period of several weeks the crusts separate and shed, and the lesion then regresses.

20% of cats infected have systemic signs including; oculo-nasal discharge, conjunctivitis, diarrhoea, anorexia and depression. These lesions are usually associated with the viraemic phase of the disease. Pneumonia can develop with often more severe skin lesions being present. Systemic disease carries a poorer prognosis.

Diagnosis:

Immunohistochemistry: can confirm pox virus infection.

Histopathology: of use but not that sensitive, so shouldn't be used for diagnosis alone.

Virus isolation or PCR: from dried scab material.

Treatment:

There is no specific treatment, antibiotics tend to be administered until the lesions have healed to prevent/combat secondary infection.

Must NOT use steroids or other immunosuppressive drugs, in order to avoid the severe, systemic infection which is often fatal.

Must screen cats for FeLV/FIV. Positive cats should be euthanased.

Special precautions:

Half of all human cases are through contact with an infected cat and in immunosuppressed individuals this can be a serious or even fatal condition. Humans become infected through cuts/abrasions, therefore the cat must be housed in isolation facilities and strict PPE must be worn at all times. Cats remain infectious until all the scabs have fallen off. It is important that the FVO or the Vet dept is notified of this disease in the centre or branch facility.

2) Mycobacterial skin infections

Background information:

Mycobacteria are gram positive, aerobic bacteria with a high lipid content of their cell wall making them acid fast with ZN stain. Conceptually there are three groups:

- 1) Obligate pathogens (eg tuberculous mycobacteria).
- 2) Leproid/tuberculous granulomata (eg lepromatous mycobacteria). These can't routinely be cultured in the laboratory.

3) Those with pathogenic potential but which are generally considered to be opportunistic saprophytes (rapid and slow growing mycobacteria).

- Obligate pathogens (eg tuberculous mycobacteria)

Cats are quite resistant to the human form *M.tuberculosis*, but occasionally infection can occur. Other closely related members to *M.tuberculosis* are *M.bovis* and *M.microti*. Cats can become infected by exposure to people with *M.tuberculosis*, ingestion of unpasteurised milk or uncooked meat/offal from cattle or venison infected with *M.bovis*. *M.microti* infection tends to occur by ingestion or a bite from infected prey species such as voles.

Clinical signs: referable to route of infection, eg ingestion results in alimentary infection including submandibular or mesenteric lymphadenopathy. Inhalation results in pneumonia and cutaneous infections are the consequence of local inoculation. *M.microti* often causes nodular cutaneous lesions which can ulcerate and fistulate. However, a mixture of clinical symptoms is possible, regardless of the route of exposure.

- Leproid/tuberculous granulomata (eg lepromatous mycobacteria)

It was previously assumed the causative agent was exclusively *M. lepraemurium* (which causes systemic disease in rats), however genetically it is most closely related to *M.avium* and *M.avium* subspecies *paratuberculosis*.

Clinical signs: Slow growing, occasionally ulcerated nodules on distal limbs. The clinical course is aggressive and locally recurrent, however cats may develop widespread lesions over several weeks.

- Those with pathogenic potential but which are generally considered to be opportunistic saprophytes (rapid and slow growing mycobacteria)

Rapid growing mycobacteria (RGM) infections:

Aka as 'Atypical mycobacteria' they are ubiquitous saprophytes. They are able to grow on synthetic culture within seven days at 24-45°C.

Clinical signs: localised infection of skin and subcutaneous tissue via a cat fight or penetrating injury. Early lesions start in the inguinal area and then spread. The inguinal area has a lot of subcutaneous fat which aids its survival and replication by providing triglycerides for growth.

The lesions present as draining tracts, purple/blue skin indentations and patchy alopecia. The skin becomes adhered to the underlying tissue, but it is NOT painful.

Guidelines for employees and volunteers for the administration of topical medication

In many cases, the treatment of ears involves applying topical medication. This can be quite tricky! Below are some pointers on how to apply ear medication.

- 1) Make sure you have everything you will need to hand. This will include the ear medication, cotton wool and appropriate PPE.
- 2) If the cat is wriggly or unhappy with having its ears cleaned, you may need someone else to hold the cat.
- 3) Hold the cat's ear flap in an upright position or gently fold it back to expose the ear canal.
- 4) Squeeze the medication in to the cat's ear. Unless your vet says differently, fill the ear canal with medication/cleaner.
- 5) Gently massage the outside of the ear canal for a minute or two – remember it may be painful. Then allow the cat to shake its head.
- 6) Wipe away any visible dirt or discharge with cotton wool. Go only as deep as your index finger wrapped in cotton wool can reach. Do not be tempted to stick anything in to the ear canal!
- 7) Wipe the nozzle clean and replace the lid.
- 8) Do not share bottles between cats as this can pass on disease.
- 9) Your vet may give you a cleaner as well as medicated drops. If so follow these steps with the cleaner, and then repeat with the medicated drops.

REMEMBER – ears are extremely sensitive and if there is a problem they can be very painful. Always be as gentle as possible. If a cat is extremely distressed during treatment contact your vet to see if another treatment might be more appropriate.

Medication should never be shared between cats and should be disposed of once the course is finished.