

# Common Dermatoses of the Dog\*

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IT IS customary to classify skin diseases as parasitic and nonparasitic. From the standpoint of accuracy in diagnosis, one is fortunate when confronted with a parasitic condition, since in these cases a complete diagnosis can be made. The macroscopic skin parasites fleas, ticks and lice are readily seen on the surface of the body in good light. The primary lesions produced by these parasites are seldom seen, being obliterated by the traumatic lesions that result from rubbing, biting and scratching, in an effort to alleviate the itching. While fleas are often difficult to eradicate from the premises during the warm months of the year, they are easily removed from the surface of the body through the use of flea soaps. Lice are destroyed by a great variety of parasitocides, but pyrethrum extracts are probably used most frequently and most effectively. Ticks, while not universally distributed, are a problem in many localities and are likewise destroyed by pyrethrum extracts. The eradication of these parasites will require additional hygienic and sanitary measures based on their respective life histories. The only treatment necessary in dermatitis due to these parasites is the destruction of the parasite itself.

## **Demodectic Mange**

Of the macroscopic parasites, the demodectic mange mites are most frequently encountered and are readily found in microscopic examination of scrapings from the affected skin. It is essential that we

bear in mind that demodectic mange occurs in 2 distinct forms, squamous and follicular. The behavior of the follicular form is so characteristic as to enable the experienced clinician to render a diagnosis in advanced cases without laboratory assistance. The microscope should be the deciding factor in questionable cases. The squamous form is readily suspected by the experienced clinician, but is readily overlooked by the uninitiated. The primary macroscopic lesion is a tiny spot where the hair is thinned. Sometimes a single lesion  $\frac{1}{8}$  to  $\frac{1}{4}$  inch in diameter will be found. These spots enlarge peripherally, but may be extremely slow to do so, and many times weeks or months pass before further lesions are noted. Often the skin shows little change beyond the loss of hair; other times the skin is found slightly thickened and slightly less pliable than that of surrounding areas; some such lesions are greyish in color and shed numerous small grey scales. There is one clinical manifestation in these lesions of great diagnostic value. If the skin of the lesion is folded and pressed between the thumb and finger, tiny droplets of serous fluid will appear on the surface. To me this is as diagnostic as the finding of the mites on microscopic examination. This type of the disease may exist for many months without becoming extensive. The squamous form of the disease offers a good prognosis, since healing can be complete and satisfactory.

## **Treatment**

*Treatment of Demodectic Mange:* The

\* Reprint from Lederle Veterinary Bulletin Vol. 10, No. 3, May-June, 1941.

commercial rotenone solutions are very effective if applied efficiently every few days. Of the older remedies, Peruvian balsam in alcohol (1 to 5) is quite satisfactory. Sulphur ointment or lime-sulphur solution will often prove effective. Whatever our treatment of the localized areas, we thoroughly bathe the patient once a week with lime-sulphur solution, with the idea of preventing the spread of the disease over the surface of the body. When confronted with a serious case of the follicular form, one's first decision is whether or not treatment is advisable. Satisfactory healing is impossible in some of these, even if one succeeds in destroying the mites. When healed the skin is rough and scales excessively; the hair coat is sparse and the animal has an unsightly appearance; sometimes an offensive odor, resulting from faulty skin function, persists. Time and money have been wasted. Neither owner nor veterinarian is satisfied.

#### Severe Cases

Many severely affected individuals will not withstand the treatment. Before severe cases are subjected to skin applications, they should be examined for internal parasites and treated in accordance with the findings. They should be judiciously fed and supplied with appropriate tonics and alteratives. As supplementary treatment, the use of autogenous bacterins is praised by some, as is the use of tissue extracts by others.

#### Antiparasitics

The efficiency of the local application is second only in importance to the choice of antiparasitic used. Thoroughness of application is essential. Oily mixtures of tar, creolin, sulphur or solutions of rotenone in oil should be applied to no more than  $\frac{1}{2}$  the body at one time; usually only  $\frac{1}{3}$  of the surface should be covered daily. Every week or 10 days the patient should have a bath with soap and water, and when dry should be coated with some bland oil and given a few days rest from treatment. We have had some good results with the much

publicized Russian treatment. This calls for a 60 per cent solution of sodium hyposulphite and a 6 per cent solution of hydrochloric acid. The skin is dressed with the hyposulphite solution applied with a brush and when this dries, in about 15 minutes, it appears as a whitish powder spread over the animal. Any spots not showing the powder should have the solution re-applied. The entire surface is now brushed with the hydrochloric acid solution. When dry, the whole procedure may be repeated. The reaction between the drugs is active for 3 days, at the end of which the treatment should be repeated. This treatment should be used every 3 days until the mites are destroyed. The reaction between these agents liberates both sulphur and sulphur dioxide, thus the mites are subjected to the combined action of the 2. This treatment is less offensive to use than oily preparations, is cheap, and the materials readily obtainable.

#### Sarcoptic Scabies

We seldom encounter sarcoptic scabies in the dog. It is readily diagnosed by the clinical behavior, together with the microscopic findings. Itching is severe and constant; the lesions spread over the body, and the disease spreads to other dogs, and often to members of the family. These mites are sometimes difficult to find in skin scrapings, especially if the patient has been treated with antiparasitics before being presented for examination. Many times the mites are more readily found by routine fecal examination. The mites entering the mouth through nibbling and chewing at itching areas pass through the intestinal tract.

*Treatment of Sarcoptic Mites:* The sarcoptic mites can usually be readily destroyed by dipping or washing the patient in lime-sulphur solution, 1 to 16 of the concentrated solution in water at a temperature of 105° F. to 110° F. Thin-skinned animals may require greater dilution, 1 to 20. The patient harboring this mite must have every particle of the skin soaked with the solution. Attempt to cure this disease through treatment of

visible lesions only is doomed to failure. The bathing or dipping should be repeated in 10 days to 2 weeks. Badly affected areas of the skin that are swollen and wrinkled or covered with crusts may well be treated with sulphur ointment or sulphur in oil between dippings. Over-treatment (too frequent bathing or dipping) should be avoided, since a sulphur dermatitis can be annoying. If there is excessive scaling after the pruritis and other symptoms have disappeared, the skin should have an application of cottonseed oil about every 4 days until this scaling is under control.

*(Benzyl benzoate, approximately 30 per cent, has been used for several years now in both of these conditions.)*

### Vegetable Parasites

The part played by fungi in the etiology of dermatitis needs much study. Ringworm, produced by the *Trichophyton tonsurans* or other similar forms of fungi, has long been recognized by its characteristic clinical behavior as well as by microscopic findings. The primary lesion is small and enlarges peripherally. The spot is first slightly reddened, then becomes covered with dirty grey crusts. This means that the growing lesion has a dirty greyish center with a reddened periphery; most of the hairs break off and their stumps are seen sticking up in the central portion of the lesion. The fungi are most readily found in scrapings taken from the margins of the lesion. These circular lesions coalesce to form irregular, more or less mottled areas. Pruritis is often intense and the character of the lesion changed by trauma. The scratchings also assist in its spread over the surface.

### Treatment

*Treatment of Ringworm:* Fungi are somewhat susceptible to fats, thus parasiticides should be mixed with oils or fats when intended for use against fungi. Creolin, iodine, or salicylic acid ointments may be used. We usually prefer the latter in 5 per cent to 10 per cent strength applied daily for a week. Care must be taken to prevent the spread to other animals by direct contact or through contaminated

utensils or quarters. Fungi have been suspected of producing other dermatitis. We have found fungi on the skin, but have not been able to incriminate them as the cause of the pathological process. Our local applications under such circumstances have been such as would deter the growth of fungi. Our knowledge of mycology is too limited for us to have definite conclusions concerning the extent to which fungi operate in the production of dermatitis. This question demands and should get our earnest attention.

### Non-parasitic Dermatitis

Practically all of the non-parasitic dermatitis of consequence in the dog is diagnosed as eczema. When we note the wide variation in clinical manifestations to which the term is applied and consider the many and diverse etiological factors, we must conclude that it is either a meaningless term or one capable of extensive application. I use the term freely, realizing that I have never seen a definition for the word that justifies my every use of it. Whether we call these inflammatory processes "eczema" or "dermatitis" is of little consequence so long as we are guided by the history and existing pathology in each individual case in determining our therapeutics. Many times the primary pathology has been greatly changed by traumatic injury inflicted by the patient, because of the intense pruritis, or by chemical irritation produced by attempts at treatment.

### Etiological Factors

We recognize 2 classes of skin irritants, external and internal.

*External Causes:* With but 1 exception, the external irritants are not of so much significance, since they can be largely controlled. They may be listed as dirt, water, soaps, parasites such as flies, mosquitoes, fleas and lice, pressure or rubbing by collars or harness. These causative factors can be removed and any conditions caused by them repaired with local treatment, and some of them heal spontaneously when the cause is removed. The exception referred to above is the

staphylococcus infection so frequently found in pustular eczema. This type of irritant is not so readily disposed of, but does yield quite satisfactorily in most instances to staphylococcus toxoid in graduated doses every 3 days. Local applications will be discussed at another point.

*Internal Causes:* The troublesome dermatoses are those resulting from what we class as internal causes, a group concerning which our knowledge is inadequate. A high percentage of these cases are seen during warm weather, June to September or October in our climate. The results of our own observations together with the observations of many others with like interests, convince us of the importance of these internal causes.

### **Heredity**

We recognize an apparent *hereditary tendency*—a family or breed characteristic. The texture as well as the color of the skin, breed characteristics, are, no doubt, factors in this connection. Thin skins, and especially nonpigmented ones, are sensitive. White skins sunburn easily and also suffer injury as a result of photosensitization.

### **Diet**

*Diet* has long been considered of major importance as a causative agent in dermatitis. There are probably many factors that come under the general head, "diet," that should be mentioned. Overfeeding, especially when combined with lack of exercise as seen in house dogs, is 1 factor. Probably the absorption of toxins from the overtaxed digestive tract is responsible for cases with this history. Food allergy or hypersensitivity seems to be a factor when judged by circumstantial evidence. We have observed many animals suffer from severe dermatitis when a particular article of diet of which they were fond was in season. Corn, during the roasting ear season, is an offender. Certain dogs consuming large amounts of corn are seen to develop a severe dermatitis with extreme itching. Remove the corn from the diet, irrigate

the intestinal tract for the removal of content, which is principally corn, and the itching subsides in 24 to 36 hours, and healing is rapid. We recall 1 dog that was very fond of watermelon and developed a very characteristic dermatitis during each melon season, unless his desires were curbed in some manner. We have observed others that are sensitive to wheat and develop patches of eczema, invariably including an otitis externa, when wheat products are added to the ration. These are simply examples, many others could be given.

### **Vitamins**

There is no phase of the dermatitis problem over which there is so much controversy as over the importance of diet as a causative factor and the manner in which it operates. Of recent years more thought has been given to the importance of an adequate diet, both quantitatively and qualitatively. Experimental studies in nutrition have shown that a deficiency of vitamin B<sub>2</sub> (riboflavin) causes a variable dermatitis. There is much speculation on the effect of mineral and vitamin A deficiency on the health of the skin. Much work needs be done before we can understand the role of these elements in skin nutrition.

### **Elimination**

*Faulty elimination* has long been considered as playing an important part in the causation of skin disturbances. The beneficial effect of increased elimination through the digestive and urinary systems in the therapeutics of some dermatitis supports this contention. The skin is one of the eliminative organs along with the kidneys, lungs, and intestinal tract. Any suppression of elimination through one channel must be compensated for by the increased activity of the other 3. The deleterious effect upon the skin may be due to the added burden of increased functional activity or to the irritation of toxic material that would normally be eliminated through 1 or more of the other channels.

There are certain *environmental factors* which demand attention when considering the possible etiology. Climatic differences appear to be important in certain individuals. Dogs have been observed to suffer a severe dermatitis when kept along the sea coast, but heal readily when taken into the interior. No doubt the opposite is also true. The amount of activity permitted is many times the determining factor. Robbing a dog of his accustomed exercise by confinement incident to apartment house living conditions may precipitate an attack. I have many times accused plant pollen or plant toxins of being responsible in some way for dermatitis in certain individuals. These have usually shown a mild rhinitis and conjunctivitis as well. These patients have readily healed when shut away from the suspected vegetation without change of diet and with little or no local treatment.

The foregoing incomplete discussion of possible etiological factors suggest some of the difficulties encountered in attempting an etiological diagnosis. Further, it indicates in a measure one's line of questioning in attempting to obtain a history.

Recognizing the existence of a dermatitis is quite simple, but determining why it exists is another matter. A good history is of primary importance and is oftentimes difficult and time-consuming to procure. It should reveal all important environmental factors, amount of exercise, etc. It should reveal the type of ration and how it has been fed. It should reveal the frequency and the character of the bowel evacuations, the appetite; and we like to inquire as to whether the breath is frequently or constantly offensive. From here on it is a matter of routine clinical examination and observation to find and remove the cause. First, one must exclude the possibility of parasitism, which may require a microscopic examination of scrapings from the skin.

### **Treatment**

*Treatment of Non-Parasitic Dermatitis: Internal*—Fairly satisfactory results will follow therapeutic measures designed to meet the needs of the individual case.

Measures that are carried out and their indications are as follows:

Increased elimination is invariably indicated. If there are acute lesions and intense pruritis, an enema should be given and repeated every 24 to 48 hours until marked improvement is shown. Laxatives are always indicated and for this purpose we make extensive use of calomel in small daily doses. It is not only a laxative, but is a good intestinal antiseptic. If more drastic action is desired, one can use the saline cathartics in light dosage. Where there is much putrefaction in the intestinal tract, the compound pills containing bile salts may be given.

If increased kidney function seems desirable, potassium acetate is a satisfactory diuretic.

### **Immediate Relief**

*Local Treatment*—When prescribing local treatment, one must be guided by the stage of the pathological process. Local applications are oftentimes of first importance from the standpoint of immediate relief. Moist areas call for the use of powders or astringent solutions. Powders commonly used are zinc oxide, zinc stearate, boric acid, tannic acid, starch and talcum. These powders can be used singly or in various combinations.

We are partial to a mixture of zinc oxide and zinc stearate, equal parts by weight. In active oozing areas, it is necessary that the powder be dusted on frequently. Astringent lotions can be used on moist areas with beneficial results. We make use of these over the less active of the moist areas. There are a great variety of such, but we rely almost entirely on an antiseptic astringent solution of 4 per cent each of tannic acid and boric acid in dilute alcohol. Powders and astringent solutions are also indicated in dealing with acute erythemas. These rapidly allay the itching and thus prevent further injury from scratching, rubbing or biting of the parts. It will often be found advantageous to bandage over powders when caring for localized erythematous areas.

When crusts and scabs are present, ointments or oils are indicated. These

should contain one or more of the powders listed above. We prefer, for most purposes, only preparations, because they can be more easily and more effectively employed. Our favorite is a 10 per cent to 20 per cent mixture of equal parts by weight of zinc oxide and zinc stearate in a light cooking grade cottonseed oil. If the mixture is too concentrated, it will not pour freely and is thus more difficult to use. This mixture serves as an emetic if licked by the patient.

Areas of chronic eczema with a thickened, rough skin should be treated with some stimulating agent, such as tar or salicylic acid. One part oil of tar to 3 parts liquid petrolatum is effective. When the tar has caused a separation of the thickened epidermal layer and the part is hyperemic and sensitive, this mixture should be displaced by powders or soothing ointments.

### **Skin Preparation**

Cleansing of the skin is often necessary before medicinal agents can be applied. Soap and water have a tendency to aggravate the inflammatory process. If it is necessary to wash the areas with soap and water, care must be taken to rinse all soap from the skin and hair. Small areas can best be cleansed with ether or alcohol. Light cottonseed oil also may be used as a cleansing agent. It should be extravagantly massaged into areas covered with scabs and debris. After some hours the mass can be wiped away with dry cotton or gauze.

If the foregoing principles are followed, a high percentage of cases will make satisfactory recovery. Some will be extremely slow to respond and some will never react favorably. The most painfully discouraging are those that heal nicely, are discharged from the hospital to return in a matter of days or weeks with fresh lesions. If this flare up can be traced to failure to follow instructions, the discouragement is not nearly so great as when the answer cannot be found.

*Diet:* Until we have had opportunity to make a careful study of the dietary needs of the patient, we place them on a

rather narrow ration. In young, active dogs, we temporarily put them on a diet of moderately cooked or raw beef. Old, fat dogs should be started on a light ration of milk, cottage cheese, etc. As soon as conditions warrant, we try to put the animal on a balanced ration, avoiding the use of any items we have suspected as being at fault in the production of his trouble. It is often advisable to make use of the compound vitamin preparations available in an effort to assure an adequate ration. A feed of raw liver once or twice a week for its food value and to serve as a laxative is commonly recommended.

*Tonics:* Digestive and general tonics are sometimes used in debilitated patients with impaired digestion.

Alteratives such as iro, arsenic, and the iodides are commonly given in an effort to improve general nutrition.

*Analgesics:* Nervous animals suffering from erythematous or weeping eczema, often react so violently to the pruritis as to make impossible the use of antipruritics or other local applications. They further complicate matters by repeatedly inflicting traumatic injury to the already damaged skin.

Greatest good can be accomplished in such patients by the administration of an anesthetic dose of one of the barbituric acid derivatives. It may be necessary to prolong this action for 24 hours or even longer.

It is well to number among one's friends a physician who specializes in dermatology. When discouraged and depressed because of some threatened or actual failure, it is refreshing and stimulating to visit with him and listen to him discourse on cases of the same type that he has treated unsuccessfully for months or years.

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Duck and turkey embryos are reported to be superior to chicken embryos for the growth of rickettsias for the preparation of typhus vaccine. The yield from eggs of either species being approximately 5 times that obtained from hen eggs.