

**EPIZOOTIC  
LYMPHANGITIS.**

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EPIZOOTIC LYMPHANGITIS.

BY

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NATURE OF THE DISEASE.

EPIZOOTIC LYMPHANGITIS is a virulent, inoculable disease, characterized by enlargement and suppuration of the superficial and subcutaneous lymphatic vessels, due to the presence of a specific organism, *viz.*, the *CRYPTOCOCCUS FARCIMINOSUS* of RIVOLTA, which is found abundantly in the pus and discharge from the ulcers and wounds infected with the disease.

INCUBATIVE PERIOD.

This varies from three weeks to three months, but it may extend to six, eight, or ten months and even more.

GENERAL SYMPTOMS.

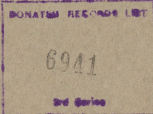
Systemic disturbance in the early stages is rare, except in those cases of the disease which are ushered in by the ordinary symptoms of acute lymphangitis. Frequently no signs of constitutional disturbance whatsoever are evidenced for weeks or even months after the development of the local lesions. The temperature generally remains normal, but in some cases there may be an inclination to very slight intermittent fever, which seldom runs above 102°, and only recurs about every 10 days. The appetite is seldom, if ever, impaired, and except in very advanced cases, which tend to become generalised, there is no loss of condition. The lesions may be found on any part of the body; they usually exist on the skin, but may occasionally occur on the Mucous Membrane, and may extend to the internal organs. They are most frequently associated with those parts which are exposed to wounds from kicks, contusions, harness galls, etc., etc.

CUTANEOUS VARIETY.

The first thing usually noticed is the appearance of a small pustule which breaks out on the edge of an old scar or adjacent to it. There is often tumefaction of the surrounding tissues and cording of the local lymphatics is common. In fact, in many cases the latter symptom is so well marked that it can be seen from a distance even in the early stages.

The time required for all these various symptoms to develop varies greatly; sometimes when a limb is the seat of the disease,

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the whole leg may suddenly swell up like an ordinary case of Lymphangitis, and no cording or nodules may be recognised until the acute inflammation and diffuse swelling have subsided. At other times the corded lymphatics may be noticed some considerable time before any pustules make their appearance, and a long string of nodules may be seen extending along the course of the lymphatics of a limb, or, if situated on the head, neck, or trunk, they radiate towards the nearest lymphatic glands.

The nodules vary in size from a pea to a hen's egg; they are well defined, and at first hard and indurated, but as the disease runs its course, they soften. The time required for this change is very irregular, and principally depends upon the resistance of the surrounding tissues.

Along the course of the lymphatic vessels affected, pustules and abscesses are formed, which burst and discharge a thick yellow pus; the abscesses now continue to discharge, and their cavities become filled up with exuberant granulations, which, protruding beyond the surface of the skin (the edges of which are inclined to become inverted), form bright red fungoid (rosette) growths which bleed easily when touched, and very much resemble farcy buds. Wounds which become infected with the disease may either heal up and then break out again, or they may gradually take on the appearance of the sores just described.

The buds, ulcers, or sores, by all of which names they are known, are characterized by their bright red exuberant granulations and their fungoid appearance, as well as by their indurated base and well defined edges; the adjoining skin, which is partially inverted, has a peculiar shiny appearance; an opening exists in the centre of the bud, from which the pus, at first creamy, and afterwards yellowish, oily, and curdled is continually discharging.

Careful examination of these buds or sores will shew that they are really quite different from those of Glanders, (farcy), and that with energetic treatment they have an inclination to heal.

The disease is commonest in the limbs. The majority of cases in the fore limb develop from broken knees and wounds (principally caused by kicks) on the inside of the fore-arm; these cases in developing extend as a rule, rather deeply seated, along the flexor brachii muscle to the point of the shoulder, and often exhibit nodules as large as a hen's egg. When developing as a sequel to capped elbow, the lesions extend across the caput muscles. In the hind limbs there is a great tendency to extend along the inside of the thigh (where wounds due to kicks are frequently situated), to the groin, and thence to wind round the back of the thigh or extend along the belly.

#### THE MUCOUS MEMBRANE VARIETY.

Lesions of the disease may be found on the nasal mucous membrane, and in rare cases, on the Conjunctiva. Lesions in the nose may be either unilateral or bilateral. They are usually

situated low down on the Septum, but may, in advanced cases, extend to the pharynx, larynx, and trachea. The lesions on the nasal mucous membrane are first noticed in the form of small papules or pimples, which rapidly form into vesicles and burst, forming a well-defined ulcer with a raised edge and dug-out centre. They are at first isolated, but later become confluent, and tend to extend to the cartilage of the septum nasi, causing the mucous membrane to become discoloured and greatly thickened by exuberant granulations. Enlargement of the submaxillary gland may exist as an accidental condition, but it is generally movable, and seldom or never fixed to the jaw, and knotty as in Glanders.

Incipient lesions on the Schneiderian mucous membrane are not accompanied by a nasal discharge, but later on a thin mucoid discharge may make its appearance, and this may eventually become mucopurulent or even sanious in nature, giving rise to an unpleasant odour from the breath.

In cases where the conjunctiva is the original seat of the disease no symptoms may be noticed externally for several weeks after the disease has begun to develop; but as it spreads towards the edge of the eyelid, a slight watery or purulent discharge makes its appearance, and on examination of the conjunctiva, a pale pink, flat, fungoid granulation will be discovered under one of the lids or on the membrana nictitans—varying in size according to the age of the lesion. As such a case develops, the granulation spreads, and as soon as it protrudes beyond the edge of the eyelid, the other symptoms then develop fairly rapidly. The head on the same side becomes swollen and the disease spreads towards the orbital process, or it may spread down the lachrymal duct to the nose.

#### METHOD OF INFECTION.

Inoculation almost invariably takes place from wounds, and the disease may therefore develop from the slightest abrasion either on the skin or mucous membrane.

The infection may be carried by or on anything, *e.g.*, vehicles, soil, fences, dust, gates, stables, harness, horse clothing, grooming and stable utensils, litter, fodder, parasites, flies, etc.; by attendants, and more particularly by amateur and careless veterinary assistants and even surgeons—on their hands, clothes, or on sponges, tow, cotton-wool, bandages, bottles, and other pharmacy utensils, twitches, instruments, necessaries, wound dressings, etc.

A few cases may infect themselves by contact, or what is more common, they may infect themselves in one or more places additional to that of the original seat of the disease, more especially on the lips or mucous membrane of the nose and eyes—by rubbing and biting in their attempts to remove flies from a wound on themselves which is already the seat of the disease. Therefore all those conditions which tend to retard the healing of the wounds, also predispose to the spread of the disease.

## DIAGNOSIS.

Microscopical examination of the pus gives a certain and immediate diagnosis. The *Cryptococcus* is a slightly ovoid organism, 3 to 4  $\mu$  in diameter, one end being generally pointed and the other rounded, and with a characteristic clearly defined contour and refractile double outline. It can be demonstrated, without staining, with  $\frac{1}{2}$  oil immersion and an Abbe Condenser under a magnification of 800 to 1000 diameters, particular attention being paid to the regulation of the light. In stained specimens, a much lower power can be used.

## DIFFERENTIAL DIAGNOSIS.

Epizootic Lymphangitis, both in its ordinary manifestation and the nasal form, may be confounded with Glanders and Farcy. The distinguishing features of this form of disease as compared with the latter are, however:—

- (1) Healthy appearance generally.
- (2) Almost invariable absence of fever.
- (3) Characteristic appearance of the ulcers, which show a tendency to heal naturally, and comparatively readily on treatment.
- (4) Whitish colour and thick creamy consistency of the pus.
- (5) Non-reaction to the Mallein Test.
- (6) Invariable presence of the *Cryptococcus* in the pus.
- (7) Absence of the diagnostic growth of the *Glanders Bacillus* on potato.
- (8) Absence of Orchitis on inoculation of male guinea pig, which is diagnostic of Glanders.
- (9) The inconstancy of enlargement of the submaxillary lymphatic glands in the nasal form, the granulating character of the ulcerations, which are not the true chancres of Glanders, the scantiness of the discharge from the nostrils and the fact that the ulcerations are more in the lower third of the nasal chambers.

The disease may also be confused with Ulcerative Lymphangitis (now known as Ulcerative Cellulitis of *FREISE-NOCARD*), with ordinary Lymphangitis followed by suppuration, i.e., Suppurative Lymphangitis, spurious forms of Strangles particularly about the face, contagious Pustular Stomatitis with external manifestations on the cheek, and Bursatti.

In the disease now known as Ulcerative Cellulitis, the lesions seldom, if ever, follow the course of the lymphatic vessels, nor have they any consistency of arrangement, but an inclination to an ill-defined, diffuse cording of the lymphatic vessels has occasionally been noticed, and especially so, when the lesions are situated high up on the inside of the thigh and extend to the inguinal regions.

The ragged appearance of the buds, however, and the dark red sanguinous and sometimes frothy appearance of the discharge, added, of course, to the presence of the *FREISE-NOCARD Bacillus*, are the deciding features in differentiating this disease from Epizootic Lymphangitis.

Ordinary Lymphangitis is an acute affection, attended with high fever, great pain of the affected limb, but there is no suppuration. In spurious Strangles, the pus teems with streptococci, but there are no cryptococci of Epizootic Lymphangitis. The mouth lousous and absence of cryptococci differentiate contagious pustular stomatitis. In Bursatti, the ulcer is hard and indurated and full of "kunkurs."

Finally, one must always keep in mind that mixed infection of two or more of any of the diseases mentioned above may be found to exist; hence the verification of the existence of one of these diseases does not necessarily rule out the possibility of any of the others co-existing.

## HOW TO DEAL WITH AN OUTBREAK.

The following steps should be taken:—

- (1) Immediately isolate all affected and suspected animals at a distance of at least one mile from their own or other units, according as local active service conditions will allow.
- (2) In view of the long and indefinite period of incubation, the protracted course which cases of the disease take before a cure can be effected, their highly infectious nature and the fact that some cases which are apparently cured are apt to recur, it is advisable that the policy of "Stamping out" be considered and followed.
- (3) Hence every suspected case is to be immediately reported to the Administrative Veterinary Officer of the Formation concerned, and under his guidance affected animals will be destroyed and carcasses disposed of.
- (4) As pus is the dangerous element of the disease, and as the standings, bedding, etc., of the affected animals are liable to contamination therefrom, thus entailing grave risks of this disease being spread from wound infection, the animals on either side of those affected, as well as those groomed by the same attendant, should be carefully examined for wounds. Any showing wounds, however slight, should be immediately isolated as "incontacts" and pus or discharge from wounds should be submitted to microscopical examination.
- (5) Carefully inspect all the animals of the unit for any further signs of the disease, particularly noting the inner aspects of legs, and places liable to kicks, galls, etc., not forgetting the nasal mucous membrane and the conjunctiva. As far as possible this should be done daily.
- (6) Make a list of all animals suffering from wounds (however slight), brushing marks, galls, etc., at the time a case or cases

occurred and existed in the lines, and, if possible, keep a strict watch on them for at least six months. These animals need not go into isolation for this purpose, but may remain with their unit in working isolation. If, however, animals with wounds and infected animals have been dressed by the same person, or the same materials or utensils have been used in connection therewith, the former animals should be placed in "working isolation" and, if possible, kept under surveillance as "wound incontacts" for at least six months. If evacuated, it should be stated on their Evacuation Rolls that they are "Wound Incontacts Epizootic Lymphangitis."

- (6) Place the whole unit in "working isolation" for six months, or as near that period as possible, according as local active service conditions will allow.

By the term "Working Isolation" is meant that though kept at regular work, no inter-mixing with others is allowed, either directly or indirectly.

- (7) Avoid too many isolated groups in a unit as causing inconvenience.
- (8) By every possible means mitigate the number of kicks. Spread out animals whenever possible, as in picket; place kickers out of harms way, or keep them shackled.
- (9) Institute a thorough inquiry into, and if necessary change the system of dressing wounds. Abolish sponges. Avoid touching wounds as much as possible, either with hand or with syringe. Use perchloride of mercury 1 in 500 for some time. Restrict the use of cotton wool and tow as much as possible, but keep wounds covered up with gauze or bandages. Use separate pieces of tow or cotton wool for each wound, and burn when soiled.

Cover any exposed wounds with dry antiseptic dressing.

- (10) All wounds, however slight, to be reported. Discontinue the practice of dressing wounds in the lines under regimental arrangements, and have all dressing done under veterinary supervision.
- (11) Keep down flies by every means, and to prevent them from molesting wounds, apply cheer pine oil or other suitable fly dressing lightly twice daily.
- (12) Disinfection must be thorough, and directed against anything contaminated with pus from the abscesses and ulcers. Use heat and fire freely. Certainly destroy all bedding, rubbers, sponges, and clothing of affected. Well burn the surface of the standing or standings, walls, etc., and throw into disuse for at least three months. Brazing lamps are most useful for disinfection in this disease. Follow the instructions laid down under "Routine of Disinfection," but use disinfecting solutions stronger. Carbolic acid is of little use. Boiling water, chlorinated lime of double strength, and perchloride of mercury as strong as 1 in 250 should be relied on. Disinfection measures

should be repeated. Do not forget the clothing of attendants, including their boots. Harness and saddlery must have special attention, boiling water, soap and perchloride of mercury being used. In a severe outbreak, disinfect the clothing, grooming kit, stable utensils and saddlery of all animals in the unit: even the animals themselves should be thoroughly washed and cleansed.

- (13) Be most careful to boil any instruments that have been used for opening abscesses, etc., in fact, make a practice, in every outbreak, to thoroughly disinfect all veterinary hospital appliances, the hands, clothing, etc., of veterinary assistants and hospital attendants at once, and to repeat the process during the outbreak.
- (14) The free use of the microscope cannot be too forcibly impressed upon those who may have to deal with an outbreak of this disease. Much time and unnecessary isolation of animals is saved by an early diagnosis, such as can only be made by the microscope.

Materials from suspicious wounds should be periodically examined, and even in cases when nothing has been detected at first, further examination may prove the presence of the organisms.

In dealing with this disease, as in all other contagious and infectious diseases, success depends upon: (a) Early diagnosis in every case, and (b) the thoroughness with which prophylactic measures are carried out.

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