

## VETERINARY MEDICINE

# Hard Pad Disease in Dogs

England's dogs are being attacked by a fatal disease which turns the pads of their feet to iron-like hardness. A virus is the responsible agent.

➤ A DISEASE that turns the pads on a dog's feet as hard as iron is rapidly displacing distemper as the number one killer of dogs in England.

It is called, logically enough, "hard pad disease". Like distemper, it is caused by a filterable virus. In some ways it seems to be a freak offshoot of distemper virus.

Most distinguishing characteristic of this new disease is that in most cases the pads on the dog's feet, and sometimes the end of the nose as well, become thick and hard.

When a dog with hard pad disease walks on a wooden floor its feet beat out a drum-like tattoo. Veterinarians in England now tap the pads of all distemper suspects with a pencil. A sharp clicking means hard pad disease.

In fact, in about half of the cases fits are the first symptoms of hard pad disease. Sometimes they are so violent that the dog dies before the pads have a chance to harden.

Other complications of the disease are severe diarrhea and edema of the lungs, the latter frequently being cause of death.

When a dog recovers from a typical case of hard pad disease the hardened pads and nose come away as perfect casts, leaving soft normal tissue beneath. Unfortunately, most dogs do not recover from hard pad disease.

There is, however, one bright spot in the picture. A team of researchers of Burroughs, Wellcome and Company laboratories have developed a very effective vaccine against the disease. The scientists are A. B. Macintyre, Dr. D. J. Trevan and Dr. R. F. Montgomerie.

Their vaccine is a 20% emulsion of infected dog spleen, with one-quarter of one percent formalin. One dose injected under the skin gives very effective protection.

They have also developed a strong serum for protecting dogs which have been exposed to the disease and for treating dogs already sick.

Immunization with hard pad virus does not protect against distemper, though immunity against distemper, especially if naturally acquired, may bestow some immunity against hard pad disease. But at best this cross-protection is unreliable.

First inkling of the presence of the disease in English dog population came in 1945, when complaints began coming in that supposedly reliable distemper serums and vaccines were failing to protect dogs against "distemper". Puzzled research workers could only surmise that this latter "distemper" was not the true distemper of dogs, for which the immunizing agents were designed and against which they were effective.

The British scientists set out to unravel the riddle. They soon discovered that the case histories of many of the sick dogs they examined were not typical of distemper.

In 1945, Dr. Margaret Scheitlin, a Swiss researcher visiting the English laboratories, pointed out to the team of scientists that in Switzerland when she found hard pads on a dog she could lay an odds-on bet that within a few days the dog would develop fits and convulsions. This fitted in with what the English workers found on checking over their own cases.

The virus seems actually to attack all the body tissues and the disease has been passed from sick dogs to ferrets by injection of foot pad, brain, spleen and lung tissue. In pregnant bitches it attacks the embryo and causes abortion. The virus has been recovered from the premature aborted embryos. On the other hand, the infection has been observed in a 13-year-old dog.

So far as is definitely known, cats do not get hard pad disease. One cat that had convulsions is regarded as a possible suspect, but it did not develop the typical hard pads such as is usually seen in infected dogs.

One curious fact that Dr. Montgomerie and his co-workers have uncovered is that some sulfa drugs, far from being a cure for the disease, actually help bring on the disease in laboratory-injected dogs. While the typical disease can readily be produced in ferrets by injection of hard pad virus, such injection in dogs ordinarily brings only a fever lasting about ten days to two weeks, after which the dogs get well. But when the English scientists gave their dogs certain of the sulfa drugs along with the

virus, five out of six dogs developed all the nervous symptoms, while three developed hard pads as well.

Science News Letter, July 2, 1949

## VETERINARY MEDICINE

## American Scientists Are Investigating Hard Pad

➤ HARD PAD disease of dogs is being investigated in this country, Dr. J. G. Hardenbergh, executive secretary of the American Veterinary Medical Association told Science Service.

Numbers of cases of the disease and the numbers of deaths it has caused among dogs in the United States are not known, Dr. Hardenbergh said, but the hard pad condition has been reported to occur in about five percent of dogs with symptoms of distemper.

Hard pad disease characteristics are not considered new to American veterinarians and more research is needed on this condition to distinguish it from other manifestations of distemper, Dr. Hardenbergh explained.

Science News Letter, July 2, 1949

## MEDICINE

## Radiation Fails Against Disease-Causing Worm

➤ SMALL-SCALE atomic warfare has thus far failed against the little worms that cause a relatively common American disease.

The worms, *Trichinella spiralis*, cause trichinosis, a disease humans get from eating raw pork containing one form of the worms. Drs. Joseph E. Alicata and George O. Burr of the University of Hawaii and the Hawaiian Sugar Planters' Association Experiment Station tried potent gamma radiation, one of the hazards of atomic bomb blasts, against meat containing the worms.

Results, reported in the journal, *SCIENCE* (June 10), show more or less a victory for the worms. The rays rendered female worms sterile. On the other hand, larvae encysted in meat, the form of the parasite which gives humans the disease, were not killed by the radiations used.

Next step, say the scientists, will be experiments with a larger dose of gamma rays. Aim of the work is a radiation treatment for meat which will protect against trichinosis.

Science News Letter, July 2, 1949

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