

dating from the second mallein test. Those animals which are treated a second time with mallein on account of typical reaction, and are then found to give uncertain or atypical reactions, should be treated in a similar manner; while those found typically reacting a second time should immediately be destroyed.

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## PULMONARY GLANDERS AND THE OTHER NODULAR LESIONS WHICH MAY BE MISTAKEN FOR IT.

By M. RIEGLER, Bacteriological Institute of the University of Bucharest.

PULMONARY glanders may exist as a secondary manifestation, but it frequently exists as primary glanders, or as the only manifestation of that malady, in horses which have lived with others which were openly glandered.

This glanders, having an evolution of a slow, insidious or latent character, cannot be suspected, unless use is made of the thermometer, of mallein injections, or the sero-diagnosis.

The proportion of horses suffering from this kind of pulmonary glanders may rise to 30 or 50 per cent. of the effectives of a group of horses.

It may be considered as a primary pulmonary glanders, in view of the sometimes total absence of glanderous lesions in the other parts of the horses' bodies. The evolution of this pulmonary glanders is slower and more benignant than that manifested by chronic glanders; and, as the lesions are very slight, we may suppose that it is curable.

Experiments and observations made up to the present have shown that pulmonary glanders, whether as the only localisation of this malady, or in co-existence with glanderous lesions in other organs, is often produced by infection through the digestive passages. But for the complete elucidation of the question it is to be desired that new researches should be made, employing, for ingestion experiments upon horses, cultures of the bacillus of glanders, such as are obtained from glandered horses; or, better still, using the excreta or other products of these horses, but only in small quantities.

The lesions of pulmonary glanders are many and varied; but the principal and as it were specific lesion is the glanderous nodule, with different aspects, dimensions, and transformations, which often co-exist in the same animal. These lesions undergo, rarely and in a slight degree, the calcareous infiltration. Glanderous lesions in the bronchial glands are most frequently found at the same time as these pulmonary lesions.

The nodular lesions may have resemblances to, or may be confused with, nodules originating from chronic lesions of bronchitis or catarrhal bronchitis, of peribronchitis, or bronchiectasis, by fibrous or fibro-calcareous nodules of pneumoconiosis, with metastatic centres of pyæmia, with tuberculosis, the metastatic centres of true neoplasms, but principally, and sufficiently frequently, with the translucent, fibrous, or fibro-calcareous nodules of parasitic origin. The nature of the lesions may be determined if there exist glanderous lesions in other parts of the body; but if there are none of these, we try whether there do not exist glanderous alterations in the bronchial glands; we make an attentive examination of the characters, localisations, and relations of these lesions with the pulmonary tissue; and, as the surest means, we employ microscopic examination, culture, and inoculations into experimental animals, for glanderous lesions have at times a perfect resemblance to parasitic ones.

Sometimes calcified lesions of the lung are of a glanderous nature. These lesions are sometimes absolutely sterile, but often enough one may succeed in obtaining mild cultures of the glanders bacillus, or positive inoculations into animals. The best way to success lies in the concomitant employment of inoculation into guinea-pigs and microscopic examination.

## CANCER IN DOMESTIC ANIMALS.

By Professor Dr OLT, Giessen.

CARCINOMA in domestic animals exactly corresponds histogenetically with that of man. The cancer cells of the primary swelling and the metastases are descendants of a group of epithelia, or of a single epithelial cell, in which an unlimited power of increase, of unknown origin, is developed and transmitted. All metastasis is to be attributed to transplanted cells, which increase without communicating their property of forming swellings to the epithelium in their new environment. The cells in the neighbourhood of the metastases remain rather passive, or perish from interruption of nutrition. Herein lies the essential difference between swellings and infectious metastases. The latter arise from wanderings of the causes of disease, and fulfil their functions on the tissue of the correspondent infected path.

The Cohnheim theory, which refers all tumours to evolutionary causes, has but the smallest bearing on the case of carcinoma. The origin of carcinoma, in a case observed by the author of this Report, was referable to laminated epithelium which, in consequence of embryonic displacement, covered a large surface in the rectum of a horse. This very rare instance does not, however, explain how it happened that a small portion of displaced epithelium had acquired the character of forming tumours.<sup>1</sup>

The influence of age is also in animals a disposing cause towards cancer. There seem to be no difference as regards prevalence between the sexes, or between original and cultivated races. Neither is it known that a tendency towards cancer is hereditary among animals; nor are there any observations available relative to the appearance of epidemic carcinoma, or to temporary variations in the prevalence of cancer.

Those parts of the body most injured by mechanical wounds, such as harness chafings, are not the favourite seats of carcinoma. Neither do lesions of the tissue of the mucous membrane, caused by animal parasites (*Gastrophilus* larvæ, Strongylidæ, Trichocephalidæ, Tæniæ and others) in vast numbers, with their chronic irritation, form, so far as present observations carry us, factors disposing to cancer. Nor have wounds caused by thermic or chemical means any importance in this regard.

Applications of a high degree of heat, for therapeutic purposes or in operations, and branding of the stud marks, do not, as is known from experience, give rise to swellings, any more than cauteries do, or rubbings with applications that cut the skin. The fact that in fifty-two cases of carcinoma of the penis in horses only geldings were affected, is attributed by A. Sticker to the results of imperfect erection, whereby smegma and other dirt collect in the prepuce. It is, however, to be remembered that the number of geldings is beyond all proportion greater than that of stallions. Lubarsch has stated the prevalence of skin-cancer among animals, founded upon clinical observations made at Berlin. Of 784 cases of canine carcinoma, the outer skin (exclusive of the anus, palpebræ, mamma, penis, and scrotum)

<sup>1</sup> The preparation in question is to be found in the collection of the Veterinary College at Hanover.