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VETERINARY SCIENCE

An Epizootic of Equine Sarcoid

JACKSON<sup>1</sup> first recognized and described equine sarcoids, which are locally aggressive, fibroblastic tumours of equine skin. They are often multiple, frequently recur following surgical excision or radiotherapy, and generally have fibropapillomatous features. Horses, donkeys and mules are susceptible. Neither a seasonal incidence nor an age distribution of equine sarcoids has been detected<sup>2</sup>. Jackson pointed out that the gross and microscopic appearance of the tumours, the predilection sites, and the pattern of spread to secondary sites on affected animals were suggestive of viral aetiology. Auto- and homo-transplantation have been reported<sup>3-5</sup>. Voss recently reported that several tumours were produced in horses with centrifuged sarcoid extracts which probably were cell-free although they had not been filtered<sup>6</sup>. Intradermal inoculation of bovine papilloma virus in horses produced localized, fibroblastic growths similar to equine sarcoid which suggests the interesting possibility of a causal relationship to equine sarcoid<sup>7</sup>. Equine sarcoid has no known relationship to Boeck's sarcoid in man.

An epizootic of equine sarcoids occurred in the spring of 1965 in a herd in Eastern Washington, United States. Fig. 1 gives details of the important features of this herd from its beginning in 1961 until the end of 1965. The herd

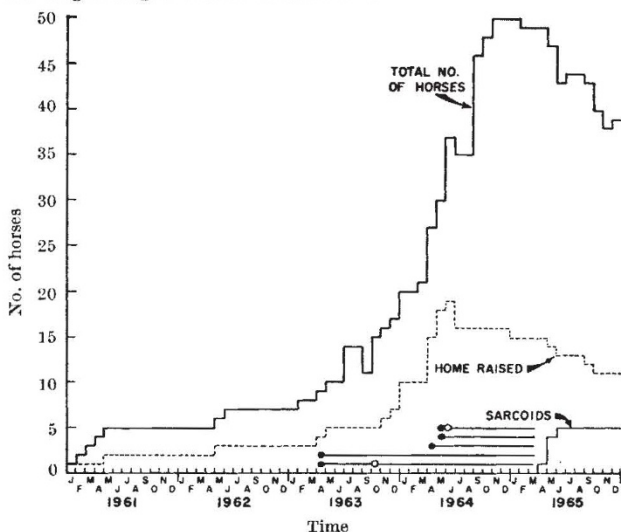


Fig. 1. The occurrence of sarcoids in a herd of horses. The total number of horses at risk for any month is given by the top solid line. The number of these horses born in the herd is designated by the broken line. The number of sarcoid cases is given by the bottom solid line. Horses less than 6 months of age are not included. The solid circles indicate when each of the five affected horses was born. Two of the affected horses were not born in the herd. The dates they were introduced into the herd are designated by open circles

was made up of Appaloosa, Quarter, Pony of the Americas, and mixed breed horses. The entire herd was at risk but was free from sarcoids until April 1965 when one case was observed. There were three additional cases in May and a fifth case in June of that year. All five cases occurred in a six-week period.

One horse was a mixed breed and the other four were Ponies of the Americas. There were four fillies (two yearlings and two 2-year-olds) and one 15-month-old colt. Four cases had solitary tumours (right upper forearm, left foreleg just above the carpus, right distal thigh, or the anterior right stifle). One case had multiple sarcoids located on the right mandible, base of the right ear, and on the right shoulder. The herd was maintained under close observation so that all the cases were detected early and presented for treatment while the tumours were still small (the largest was 3 cm in diameter). The tumours were removed by surgical excision and the diagnosis was confirmed by histopathological examination. Microscopically the tumours appeared to have been adequately excised, and none has recurred.

An estimate of the incidence of equine sarcoids in the Pacific Northwest, based on equine accessions at the Washington State University Veterinary Hospital for a 140-week period, was 0.0049 per hundred per week. The true incidence is undoubtedly lower. The attack rate in this herd during the 6-week outbreak was 1.8 per hundred per week.

The most striking feature of the history of the herd was the addition of a large number of horses 8-12 months before the appearance of equine sarcoids. If it is assumed that equine sarcoids are caused by a virus, the incubation period was probably less than 1 year because three of the affected individuals were yearlings. Sarcoids have been observed in 6-month-old foals<sup>2</sup>. If a sarcoid-evoking virus had been present in the herd early in 1963, one might have expected that the two affected 2-year-olds would have developed sarcoids at an earlier date. Since these two individuals developed tumours at about the same time as the other three, it seems reasonable that they were all infected at about the same time. Thus, we believe that a sarcoid-evoking virus might have been introduced into the herd with the horses added to the herd 8-12 months before the tumours appeared.

There was also a familial pattern in this epizootic as four of the five affected individuals were members of a highly inbred family. The herd husbandry made it difficult to explain this pattern on the basis of environmental factors. The elucidation of a genetic factor would require a prospective study.

While the epizootiologic picture in this herd was compatible with a viral aetiology, it will be necessary to isolate and characterize a sarcoid-evoking agent by appropriate procedures. The relationship of such a virus to bovine papilloma virus should be determined.

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