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AN OUTBREAK OF VİRUS ABORTION IN MARES IN TURKEY

Equine virus abortion is a highly contagious disease of horses and donkeys which is characterized by the death and the expolsion of fetus usually during the second half of the pregnancy.

Virus abortion which was described by Dimock in 1940 has been recognized in the United States of America(1), Jugoslavia, Austria, İtaly, Germany (20), Hungary (13), Bulgaria (15), and South Africa (14), İt is a particular hazard in horse breeding establishments.

The cause of the disease is a virus which may be present in the tissues of the fetus, in the placenta, and in the fetal fluid. İt has been demonstrated that the agent of equine virus abortion is similar to or identical with the equine influenza virus (13,7). Equine influenza and equine virus abortion are only different terms for an infection with the same virus. Depending on their resistance naturally infected animals first of all show a more or less acute clinical picture of influenza after an incubation period of 3-7 days. Abortion follows 14-76 days after infection. The preceding influenza stage on account of its frequent mild course often remain unnoticed. Crossimmunization, animal experiments and the complement fixation reaction getting positive ten days after infection conferm the identity of the viruses, which considered responsible for two different diseases(13).

Virus abortion can be readily induced in pregnant horse and donkey mares, by eiter the oral or parenteral administration of the unfiltred or filtred suspansions of infected fetal organs (14).

Under natural conditions outbreaks may occur either in brood mares kept continously at pasture or in stablet animals. The infections apparently spreads from mare to mare, and at present there is no information available which implicates the stallion.

The infection is also transmissible to pregnant mares (3,6) and guinea pigs (14), to suckling hamsters (4), and finally after continuous passages to adult hamsters (4, 5, 10). The virus also has been cultivated in tissue cultures (17, 18), and in embryo nothing eggs (8,9). more recently the equ-

ine influenza virus (virus abortion) has been adapted to suckling mice by intracerebral inoculatio, producing a neurotropic variant (16).

The pathological changes in this disease are generally confined to the fetus and the fetal membranes and the dam seldom suffers any abvious disturbances apart from the abortion. Dimock, Edwards and Bruner (2) demonstrated the presence of acidophilic intra-nuclear inclusion bodies in the liver, lung and epithelial cells of the respiratory tract of aborted fetuses. They recomended a histological examination of these organs for purposes of diagnosis. The inclusion bodies are found most readily in cells of the respiratory epithelium and in the hepatic cells near the periphery of the necrotis foci that might occur in the liver.

This paper reports the first outbreak of virus abortion in mares on the governmental stud, Turkey. The diagnosis of the disease is based on the demonstration of the pathognomonic lesions in the aborted fetuses.

Material and Methods

Virus abortion broke out among the arabian brood mares of the governmental stud in the spring of this year for the first time. Eighteen mares had abortion. The aborted fetuses were examined grossly and microscopically. The histological specimens were fixed in formalin and sectioned at 10 micron and stained with hematoxylin and eosin.

Results

Viral abortion broke out in the arabian brood mares on the governmental stud in the fooling season of 1962. The source of the infection remaind unknown. Eighteen mares had abortion. The incidence of abortion in a stall was very high. The mares apparently did not suffer in any way apart from the abortion. The abortions occurred without premonitory signs and the placenta was not retained. The age of the mares had no effect on the incidence of the abortions. The age varied from 5 to 17 years. The majority of the abortios (in 12 cases) occurred between ninth and tenth months of pregnancy. In four cases the abortion took place as late as the eleventh. In two cases the abortion occurred as early as the sixth month.

In the aborted fetuses the lesions weretypically found in the lungs, liver and lymphnodes, although slight icterus, interlobular pulmonary edema, hydrothorax and petechial and ecchymotic hemorrhages especially beneath the respiratory mucosa were significant gross findings. The focal

necroses in the liver appeared grossly as greyish-white, subcapsular spots up to 5 mm. in diameter. Liver cells surrounding the foci of necrosis very often contained small eosinophilic intranuclear inclusion bodies (Figs. 1,2). The similar inclusion bodies were also found in the bronchial and alveolar epithelium (Fig. 3). İntranuclear inclusions and foci of necrosis were present in the spleen and lymphnodes.

Discussion

Virus abortion occurred among the mares of all ages. The mares apparently did not suffer in any way apart from the abortion. the abortions occurred without premonitory symptoms. The incidence of abortion was highest in the last third of pregnancy. The source of the infection remained obscure.

The gross and histologic lesions were similar to that previously described in virus abortion in mares by many workers (1, 11, 15, 19).

Recently, Doll etal (11) and Doll etal (12) isolated a filtrable agent from an equine fetus aborted during an outbreak of an infectious disease in a group of pregnant mares. The agent was differentiated from the equine abortion virus. Viral arteritis of horses is suggested as the name of the disease produced by the newly isolated agent, which is designated as equine arteritis virus. The name is based on specific lesions in the small arteries of horses infected fatally by virus. Equine abortion virus and equine arteritis virus posses distinctly different properties and produce different specific lesions in horses. Doll etal (11) stated that there is no cross protection between these two different viruses. Either virus may cause severe losses from abortion. Fetuses aborted from infection by either virus have some gross lesions that are similar, but the severe edema of the lungs and focal necroses of the liver differentiate infection by equine abortion (influenza) virus. Histopathologically intranuclear inclusions bodies in the bronchial epithelium, alveolar cells, hepatic cells and reticulo-endothelial cells specifically differentiate equine abortion virus infection of the fetus from arteritis virus infection. İnclusion bodies were not demonstrated in the tissues of fetuses or young or adult horses infected fatally by the artritis virus.

Abortion due to infection by the equine abortion (influenza) virus occur subsequent to the convalescent period of the mare, whereas these caused by artritis virus infection were associated closely with the febrile and convalescent period of the mare(11).

The pathognomonic lesions in our cases indicate that equine abortion virus was responsible for the abortion in the brood mares in Turkey.

Summary

An outbreak of viral abortion of horses on a breeding farm is disscussed. Lesions found in aborted fetuses are described. Findings in aborted fetuses indicate that the abortion results from an equine abortion virus infection.

Özet

Yazıda harada atlar arasında çıkan viral abortus hastalığı tartışılmakta ve atılmış fötuslarda görülen lezyonlar tarif edilmektedir. Atılmış fötüslardaki bulgular abortus'un viral-abortus enfeksiyonundan ileri geldiğini göstermektedir.

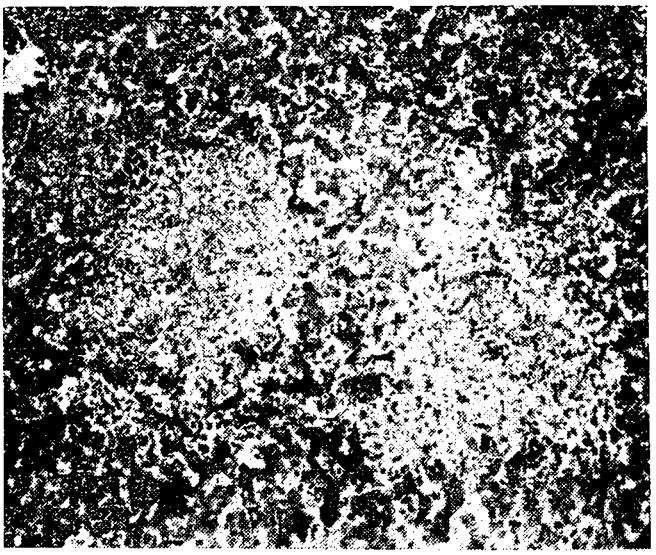

Fig. 1 : Focal necroses in liver
H. + E. × 75

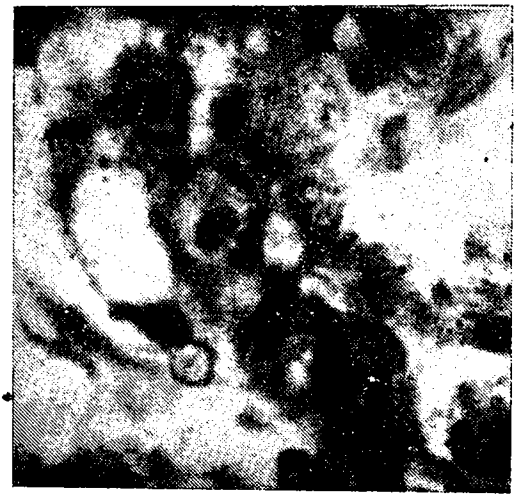

Fig. 2: İntranuclear inclusions in bronchial epitheliums
H. + E. × 1200

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