

AN INVESTIGATION OF DOURINE AND ISOLATION OF TRYPANOSOMA EQUIPERDUM IN IRAN

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INTRODUCTION

Dourine is a contagious disease of horses and donkeys. It is caused by *Trypanosoma equiperdum*, and is almost always transmitted by coitus. The disease is usually chronic and generally fatal. Principal clinical signs are edema and ulceration of the external genitalia, cutaneous lesions, and paralysis.

OCCURRENCE

Dourine had been controlled in most countries of the temperate regions by about 1929, after causing serious losses during the previous century. Between 1929 and 1962 outbreaks were recorded in Algeria, Brazil, Greece, Morocco, South Africa, Tunisia, Turkey, and the U.S.S.R.

In Iran, Dourine has been reported by some army and civilian veterinarians in southern and south-western areas of the country since 1930, but the diagnosis was not confirmed and the causative agent never isolated before.

Principal serious efforts to find the causative agent were initiated at the Ahwaz Branch of the Razi Institute in 1960, when no diseased animals were present in the cities or villages in the plain districts previously infected. However, occasional cases were reported affecting the horses of the Bakhtyary and several other tribes of the Zagros mountain districts. In these regions local soliped owners call the disease "ELLEH", which denotes a chronic fatal sickness following the serving of mares by doubtful stallions and jack donkeys. Paralysis was seen in most cases.

Naganol has been proved to be an effective medicament when injected by either intravenous or intramuscular routes. Due to satisfactory results some practitioners injected Naganol into all suspected mares and stallions, even in cases of other unknown diseases. Consequently, in most infected areas the disease

was eradicated, although it remained in some of the higher and more isolated mountain villages of the Zagros range.

MATERIALS AND METHODS

According to the veterinary services, during the last ten years, approximately twenty diseased mares and stallions per year have been shown to veterinarians, but only thirteen mares and three stallions have been examined by the Ahwaz Razi Institute. Blood samples of these animals were taken from the jugular vein, and injected, immediately, intra-peritoneally into rabbits and dogs. In twelve cases, two rabbits were injected and in three cases injections were made into two rabbits and one dog. The inoculum was 10 to 20 cc of blood for rabbits, and 50 to 100 cc for dogs. In three cases intra-testicular injections were made into rabbit and in one of those rabbits *Trypanosoma equiperdum* was later isolated. All intra-peritoneal injections were negative, although the body temperature rose in some of the injected rabbits. From the diseased animals peripheral blood smears were made and stained with Giemsa's stain, but no *Trypanosoma* was found; nor was any found in the vaginal discharge smears in the mares.

In September 1969 a technician of the Institute was sent to Lali, a mountainous district in the Bakhtyary region, to collect blood samples from a suspected mare in the village of Bonwar. The blood samples from the animal were injected into two rabbits both intra-peritoneally and intratesticularly. After nine days the body temperatures of the rabbits rose, and they also had swollen testicles. Although the body temperature in the rabbits was high, blood smears and direct examination of the blood were negative. After fourteen days scrotal ulceration appeared. They were covered by a dry, thick, dark crusts. When the crusts were scarified, a serum fluid appeared which was then drawn off; this fluid was rich in *Trypanosoma equiperdum* under direct microscopic examination, whereas direct examination of peripheral blood was negative during each period when there was a rise in body temperature.

EXPERIMENTS AND RESULTS

For retaining the isolated trypanosoma strain in rabbits, transmission was made by intra-testicular injection of the serum obtained from the scrotal lesions. All the eight rabbits injected intra-testicularly became infected; scrotal ulceration to some degree was seen after two weeks, although cutaneous lesions around the eyes and nostrils were small or nonexistent. Three infected rabbits died after 2 to 14 months of infection; these were showing extensive scrotal

ulceration and eye discharges. Two males and one female were injected intra peritoneally, and one male subcutaneously; but only raised body temperature was seen, with negative blood tests. In eight male rabbits which showed testicular ulceration, several direct blood examination and stained blood smears were done; no *Trypanosoma* was seen, however. In the smears prepared from scrotal serum fluid and stained by Giemsa's method, isolated *Trypanosoma equiperdum* looked similar to *Trypanosoma evansi*, which had been isolated in local camels; but *Trypanosoma equiperdum* appeared a little more slender. Complement fixation tests were made on the serum of two affected rabbits at the Alfort Central Laboratory of Veterinary Research in France, and both were positive against *T. equiperdum* antigen.

SUMMARY

In Iran, Dourine had been reported by army and civilian veterinarians in southern and south-western areas since 1930, but the causative agent was never been isolated until 1969. Because of the effectiveness of Naganol, the treatment used on nearly all of the suspected animals, the disease was eradicated in the plain and hill districts, although it remained in the higher and more distant areas of the ZAGROS mountains.

Fifteen blood samples taken from suspected animals were collected and injected intra peritoneally into rabbits and dogs. In three cases both intra-peritoneal and intra-testicular were made into two rabbits, in one of these, *Trypanosoma equiperdum* was isolated. In all intra-peritoneally injected animals peripheral blood smears were negative. In two rabbits which were injected intra-peritoneally and intra-testicularly, raised body temperature was seen. Direct blood examinations were negative. One of these rabbits showed testicular lesions from which *Trypanosoma equiperdum* was isolated; in the other, raised body temperature was seen with no other reactions. Isolated *Trypanosoma* was maintained by means of intra-testicular in eight rabbits which showed testicular lesions. Two serum samples from the infected rabbits were sent to the Alfort Central Laboratory of Veterinary Research in France; both were positive in complement fixation test.

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