

Sensibility of the hamster (*Cricetus auratus*) to the *Treponema pertenue*

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(With one text-figure)

Yaws experiments on rodents are not as numerous as those on syphilis; there are however many papers on the subject. Usually, several strains of treponemae under artificial cultivation are employed and considered as *T. pertenue*. The most commonly used is the so-called "Nichols' strain". The infections that develop in the rodents are irregular and symptomless. Injections of emulsified tissues from the experimental rodents into rabbits' testis, provoke specific lesions. Probably, the natural occurrence of *T. cuniculi* in rabbits has interfered in several of these experiments. On the other hand, after numerous transfers during many years the treponemae have adapted themselves to the rabbit's organism. For us it has been very difficult to provoke positive treponemae lesions in rabbit's testis by injecting material from the human yaws lesions. In the same way, neither neurotropism nor viscerotropism in mice grafted with fragments of yaws lesions could be obtained.

In this paper we report experiments with Hamsters in which there was injected material from infectious yaws lesions, there being obtained local and methastatic positive treponemae lesions.

At the First Yaws Symposium in Bangkok (Thailand) in March 1952, photographs of these lesions in the Hamsters were exhibited and at the Tropical Medicine Congress in Lisbon there was made a communication in that same year. TURNER and others in the mentioned *Yaws Symposium* presented a paper in which they reported yaws lesions in experimentally infected hamsters. Recently, HILL & GORDON also provoked experimental yaws lesions in the Hamsters.

EXPERIMENTS. MATERIAL AND METHODS

1) With material from a yaws patient, on May 9, 1951, six Hamsters were injected: two into the testis, two on the scrotum skin

and two into the peritoneal cavity. The inoculum was prepared as follows: a typical papilloma with treponemae was biopsied. After several washings it was triturated and emulsioned in saline. Each animal received 0,5 ml of this emulsion.



Fig. 1 — Experimental yaws lesions in 4 Hamsters, two on the muzzles and two on the prepuce and testicle.

SUMMARY OF THE RECORDS

Hamster N.º 2 000 — Injected in the left testicle. After 45 days the organ presented a larger volume and lesions on the scrotum were noticed. These lesions were superficial, erythematous and scamous. It developed progressively, finally reaching the prepuce and tail. Almost at the same time there appeared a nasal lesion, crusty and yellowish, which also developed until it took over all the muzzle. Both lesions contained typical treponemae. The animal died on August 1, 1951, (82 days after it had been inoculated). At the autopsy the examination of the internal organs was negative (brain, spleen, liver, kidney and inguinal lymph node).

Hamster N.º 2 002 — Injected into the left testicle. The incubation period was shorter than the former (35 days) and development was altogether the same. The scrotal lesion as the nasal one, contained numerous treponemae, the latter one presenting a typical clinical aspect of framboesime. The animal died on August, 22, 1951 (104 days after it had been injected). At the autopsy the examination of the internal organs was negative.

Hamster N.º 2 001 — Injected on the scrotum (left side). After 50 days there appeared a superficial, red and highly erosive lesion. It spread widely occupying all the scrotum and reaching the groins, prepuce and tail, on which great ulceration could be noticed. After 70 days it developed a lesion on the hinder right paw which became finally destroyed. Together with the paw lesion appeared another one on the muzzle which also contained treponemae. These were also present in the scrotal lesion. The animal died on August 7, 1951 (88 days after the inoculation). The autopsy revealed no treponemae in the internal organs. With material from spleen, lymph node and brain emulsioned in saline, 3 normal Hamsters were inoculated into the testis, each animal receiving one of the mentioned organs. These animals, under observation for more than 5 months, did not develop any lesion. (Hamsters: N.º 2 003, N.º 2 005 and N.º 2 006).

Hamster N.º 2 007 — Injected into the scrotum. After 60 days it also developed scrotal and nasal lesions. The former also spread widely. Treponemae were present in all the lesions. After 160 days the scrotum lesion had healed completely there remaining a pigmented scar only. At this time, there appeared on the palm surface of the hinder paws lesions covered by yellow crusts and containing treponemae. These lesions healed completely, but appeared again. The animal survived for a long time. On January 30, 1952 (235 after inoculation), it was sacrificed by total bleeding (heart puncture). Wasserman's and Kahn's reactions were negative. A normal Hamster was inoculated (testicle) and it died of intercurrent infection after 23 days (Hamster N.º 2 009).

Hamster N.º 2 004 — Injected into the peritoneal cavity. After 102 days the scrotum lesions also appeared and spread widely. Soon after, there appeared the nasal lesion, which developed greatly, taking the whole muzzle. Both lesions contained treponemae. After 158 days a lesion appeared on the back, with almost one centimeter in diameter and also containing treponemae. This lesion was very much similar to a framboesime and receded completely in 25 days. On October 31, 1951 (176 days after inoculation) the animal died. The autopsy revealed no treponemae in the internal organs. The scrotum skin was very dark.

Hamster N.º 2 008 — Injected into the peritoneal cavity. After 113 days scrotal and nasal lesions appeared almost simultaneously, both with the same aspect as the former ones. After 133 days a lesion appeared on the back, with a yellow crust which also contained treponemae. This lesion receded completely after a month. On January 30, 1952, the animal was sacrificed by total bleeding (235 days after the inoculation). Wasserman's and Kahn's reactions were negative. With material from the muzzle lesion, a normal Hamster was inoculated into the testicle, and developed scrotal and nasal lesions like the former ones