

Influence of Sex on Resistance of Albino Rat to Intraperitoneal Inoculation of *Brucella abortus*.*

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In the course of experiments (August 1944-August 1946) by Dr. Herbert J. Metzger and the author, on the suggestion of Dr. Robert A. Cooke, testing various sera for protective power against *Brucella abortus*, I came across a fact hitherto unnoticed which is reported in the present note.

Material and Methods. Sera drawn from normal cattle, from animals immunized with Strain 19, and from cows affected with Bang's disease were used. Albino rats (weighing from 100 to 140 g) of both sexes were inoculated intraperitoneally with small amounts (less than 1 ml) of serum and a few hours later with a lethal dose of virulent *Brucella* organisms cultured for 48 hours on tryptose agar. The animals which did not die were killed in a few days by inhalation of chloroform. A thorough inspection of the abdominal and thoracic organs and glands was made in all animals, and a bacteriological examination of the blood was carried out routinely. Bacteriological examinations were also made of any tissues showing lesions which seemed to be caused by other pathogens, and the causative agent isolated.

Observations. It is observed that under comparable experimental conditions on the average the female rats died earlier from the infection than the males. A retrospec-

tive scrutiny made of the postmortems, including the control rats, with respect to sex of 141 inoculated rats revealed that of the 81 males, 28 (34.6%) survived and 53 (65.4%) succumbed on the average 3.6 days after inoculation. Of the females, given the same *Brucella abortus* suspension, only 5 survived (8.3%), while 55 (91.7%) died after an average life span of 2 days. In later experiments the sex was recorded for each rat and the lower resistance of female rats to intraperitoneal inoculation of *Brucella abortus* was confirmed directly in tests on more than 2000 rats. It was found that the M.L.D. for female rats was approximately $\frac{1}{2}$ to $\frac{1}{3}$ that required for males. As to the influence of age, a few tests made on older female rats (weight 300-400 g) seemed to indicate that they are more susceptible than young female rats.

Comment. The reason for the greater susceptibility of the females has not been found, though all the inoculated rats were submitted to careful postmortem and bacteriological examination. The postmortem findings were manifold but practically the same in male and female rats.

Summary. Original experimental observations are reported pointing to the greater susceptibility of the female albino rat over the male albino rat to intraperitoneally-induced *Brucella abortus* infection. Sex had been previously disregarded in research work on *Brucella* infection of rats.

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