Rat-Bite Fever

By W. C. MACKNIGHT, F.R.C.S. ED., Taumarunui

This case is published to call attention to the possibility of rat-bite fever being the cause of some of the cases of irregular pyrexia occasionally encountered. No case of rat-bite fever has so far been reported in New Zealand. After this case had been investigated, I found that a similar case, even more typical clinically, had been treated in the Waikato Hospital. As the temperature chart in the Waikato case is more typical than in the Taumarunui case, Dr. Blundell has kindly copied it with notes of the case, and with Dr. Douglas's permission I include temperature chart and notes in this report. The only case so far reported in Australasia is one by Dr. O. R. P. Muller in the Medical Journal of Australia. The report appeared at the time Dr. Champtaloup was investigating the case under notice.

M.B., 11 years, schoolboy, was admitted to Taumarunui Hospital on 30th May, 1918. Family history good. Had slight attack of pneumonia five years ago. Since then good health. Lives on isolated farm. Present illness—Six weeks before admission was bitten on left hand by a wild kitten. The kitten was obviously sick and was found dead a few days after. The wound healed, but four weeks later the hand began to swell. There was some erythema of the arm, he felt sick, and became feverish for a day. Then temperature fell and he felt well. This occurred several times. The parents stated that about every third day he became “drowsy and sore, and went to bed.” He was then brought to hospital. He appeared to be a rather unhealthy, anaemic boy. The abdomen was somewhat distended. All
glands distinctly enlarged. His temperature began to rise at almost regular intervals of 4 or 5 days with corresponding enlargement of glands, erythematous patches on abdomen and chest, and muscular pains. Specimens of blood were sent to Dr. Champtaloup in the hope that the causative spirochaete would be found. Later on kittens injected with fresh blood taken at the time of a rise in temperature were also sent. No organisms were found by him to account for the condition, but as the clinical signs pointed to rat-bite fever, and in many of the reported cases no organism was found, I injected (intravenous) galyl 30cg. He had no rise of temperature for a fortnight, but then another rise occurred. A second injection of galyl was given, but did not appear to produce much effect, though the attacks became much less severe. A week later (7th September) he was discharged from hospital. The attacks continued to lessen in frequency, and ceased two months after leaving hospital.
As no spirochaetes were discovered, it is impossible to state positively that the case was one of rat-bite disease, and as the condition was not at once improved by the injections, it further diminishes the probability of the case being that disease in spite of the clinical signs and symptoms. There is, however, no other disease known to me except relapsing fever, which has such symptoms. Relapsing fever, however, is also unknown in New Zealand, and should be equally affected by salvarsan, as it is caused by a spirochaete. Dr. Champtaloup questions the probability of the case being one of rat-bite fever since it occurred in New Zealand. That is quite true, but it is strange that, as already mentioned, a very similar case was treated in Waikato Hospital about the same time. The following is a short sketch of the Waikato case.

The patient, a young girl, was admitted on 5th May, giving a history of having been bitten by a rat about a month previously. The hand healed, but later on became swollen and painful. Before admission it had been incised, but no pus had been found. The rises of temperature, as may be seen in the chart, were very regular every fourth or fifth day. The girl left hospital in an intermediate period and her history is not known.

Rat-bite fever has been known in China and Japan for a very long time, but not a great many cases seem to have been reported elsewhere. The infection follows a bite by a rat, as the name indicates or apparently by some enemy of that rodent, such as a cat or weasel. The wound heals, but after a prolonged incubation of three to six weeks the parts around become swollen. If incised, no pus is found. The lymph glands become enlarged, not only those associated with the bitten part, but all over the body. The temperature rises, and is accompanied by a rash, generally erythematous, and there is pain in back, limbs and joints. The remarkable point about the temperature is its rapid rise and fall, and its periodicity. It recurs every fourth or fifth day or at longer intervals. During the rise of temperature the glands increase in size, and become painful. Between the attacks the patient feels quite well. The bacteriology is discussed by Dr. Champtaloup, who made a very exhaustive search for the organism. As the organism is a spirochaete, the best treatment is injection of salvarsan or a similar preparation.