A CASE OF CAT-BITE FEVER

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Cases of cat-bite fever are rare, particularly in this country, although a short note recording an instance of the disease was published by Collier in the *British Medical Journal* in 1924.¹

It is generally agreed nowadays that rat-bite fever and cat-bite fever are one and the same disease,² and a case of rat-bite fever acquired from a dog was described in America last year by Ripley and Van Sant.³ The disease is known as "sodoku" (Japanese "so" = rat, and "doku" = poison), and occurs all over the world.

Case Report

A girl, aged 14½, was admitted to the Royal Masonic Hospital on November 11th, 1934, with the following history. On September 3rd, while releasing a stray cat from a trap in a garage, she was bitten on the back of her bare right leg just above the ankle. The wound was immediately washed, painted with iodine, and bandaged, and it rapidly healed. The leg, however, began to swell on September 12th at the site of the wound, and a watery exudate appeared. The wound then broke down and a painless lump, the size of a walnut, appeared in the right groin. No red lines, suggesting lymphangitis, were noticed. The temperature, taken for the first time, was found to be 103° F. On September 15th it was 104°, while two days later it was normal, and the child seemed better.

On September 20th the patient was flushed and the temperature was again 104°, rising next day to 105°, when, after a profuse sweat, it once more fell to normal. On September 25th it rose to 102°. The wound on the ankle had again healed by September 31st. From this date to the time of her admission to hospital, on November 11th, the temperature rose periodically, approximately every fifth day, was raised for about forty-eight hours, and normal for about three days. With each wave of fever the patient complained of drowsiness, stiffness in both arms and, to a lesser degree, in the legs, loss of appetite, flushing of the face, and constipation. A rash was first noticed about two weeks after the cat-bite, and appeared with each wave of fever; it was confined to the face before admission, and showed itself

in the form of two red curved lines on the forehead over the right eye.

No abnormal signs were found on admission, but a wave of fever started the next day, with a corresponding rise in the pulse rate, as shown in the accompanying chart. There was a very small increase in the respiration rate. On November 13th the patient vomited, and was delirious by night. The rash now appeared as circinate areas on the face, arms, and trunk, each composed of a white central area which was surrounded by a bluish-red erythematous zone. Further, there were two peculiar red curved lines on the forehead over the right eye. The temperature fell to normal on the following day; there was slight epistaxis, and the rash gradually faded.

Another wave of fever started on November 17th, with a

reappearance of the rash and drowsiness. On November 21st, when the temperature was due to rise again, an intravenous injection of 0.15 gram N.A.B. was given. The fever was of shorter duration and the maximum rise 103.8°, instead of 104.2° as on the two previous occasions. The rash only lasted a few hours, and was less intense. There was no vomiting and no epistaxis. Subsequent injections of N.A.B. were given, 0.2 gram on November 23rd and 0.25 gram on November 25th. There were no further rises in temperature, and the patient appeared well.

She was due to return home on December 15th, when she complained of pain in the right arm, and her temperature started to rise, reaching 102.8° on December 17th and falling to normal by December 19th. The whole wave took four days. A diffuse swelling, about 2 inches by 1 inch, was found in the right triceps muscle; the skin over it was hot and a little red, and there was tenderness and limitation of movement in the right upper arm. On Decem-

ber 16th a similar swelling was found in the left arm in the left common extensor origin. On December 18th there was pain in the front of the chest, and an oval swelling about 1 inch by 1/2 inch could be felt in the right pectoralis major muscle. The patient sweated profusely the following day and the pain and swellings disappeared rapidly.

The temperature rose to 99.4° in the morning of December 22nd, and the pain, swelling, and stiffness reappeared in the right triceps muscle. An injection of 0.3 gram N.A.B. was given intravenously, and the temperature fell to normal that evening, but rose to 102.8° the next morning; subsequently the symptoms rapidly disappeared. Further muscular swellings, with slight rises of temperature, occurred on January 8th, 1935, in both forearms, and on January 12th a final injection of 0.35 gram N.A.B. was given intravenously. There were no further symptoms, and the patient was discharged home on January 20th.

Pulse and Temperature Chart of the Case

Pathological Findings

The laboratory investigations were as follows:

Blood Counts ...	Nov. 14, 1934	Nov. 19	Nov. 29	Dec. 6	Jan. 9, 1935
Red cells ...	3,330,000	3,230,000	4,230,000	4,270,000	4,140,000
Hb per cent. ...	60	56	61	76	77
C.I. ...	0.89	0.86	0.72	0.84	0.92
White cells...	24,000	19,000	14,000	10,000	6,500
Polymorphs per cent. ...	—	94.7	62	53.7	—
Large mononuclears per cent.	—	1.3	4	4.7	—
Small mononuclears per cent.	—	4	32.7	40.7	—
Eosinophils per cent. ...	—	—	1.3	0.3	—
Mast cells per cent. ...	—	—	—	0.6	—

No abnormal red or white cells seen.

Urine: trace albumin; a few leucocytes; culture sterile.
Blood culture on November 14th: sterile after eight days'

incubation. Blood agglutination on November 15th: negative for *B. typhosus*, *paratyphosus* A and B, and *Br. abortus*. Blood Wassermann reaction: November 16th, slightly positive; December 6th, strongly positive; January 9th, negative. Both guinea-pigs and mice were inoculated with citrated blood taken from the patient on November 18th, but no spirillum was recovered.

Although the causative organism was not recovered from the blood there appears no doubt that the illness is an example of *sodoku*. Features of special interest are the muscular swellings, which do not seem to have been previously recorded, and a definite conjunctivitis, which disappeared after the injections of N.A.B. The positive Wassermann reaction is a characteristic feature.

Our thanks are due to Dr. L. E. H. Whitby for performing the blood inoculation into the mouse, and to Dr. Eastes's laboratory for the other pathological investigations.

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- ² Yamada, K.: Abstracted in *Trop. Dis. Bull.*, 1919, xiii, 340.
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AN UNUSUAL OUTBREAK OF
GASTRO-ENTERITIS

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The outbreak of gastro-enteritis here described appears to be worth recording for two reasons: in the first place because, notwithstanding the increase of our knowledge of the causes of food poisoning in recent years—particularly as regards the *Salmonella* group of organisms—there is still much to be learned about the subject; and, secondly, because I feel that it is very easy to attribute mild attacks of gastro-enteritis to "gastric influenza" or other unknown causes when a more careful investigation might disclose a food infection. The present outbreak would probably never have come to light were it not for the fact that two deaths following gastro-intestinal symptoms were reported to the coroner, and the resultant inquiries from private practitioners revealed other cases of a similar nature.

As far as could be estimated the period covered extended from about November 12th to December 9th, 1934. Some seventy cases in all came to notice in this district, and there were, no doubt, many more mild cases which did not consult a doctor. One heard of a few similar cases occurring in neighbouring districts, but inquiry of other medical officers of health failed to disclose any widespread epidemic. The majority of patients were the only members of the family to be affected, but in eight instances there was multiple infection in the same house. An interesting example of multiple infection (which unfortunately was not reported until two weeks later) occurred at a sports club where about one hundred members from various parts of London met for tea on a Saturday afternoon, and, of these, twenty were afterwards taken ill.

Nature of Illness

All classes of the population were affected indiscriminately, and there was no selectivity for age or sex. In the most marked cases there was a fairly sudden onset, with severe epigastric pains, vomiting, diarrhoea, and collapse. As a rule there was no increase of pulse rate, and the temperature was normal or subnormal, except in young children, where there was an occasional rise of one or two degrees. Some cases had vomiting only, and a

number complained of diarrhoea only. Even when the original illness was mild, convalescence was frequently associated with a feeling of profound depression and debility. It was possible to calculate the incubation period in the case of the group occurring in connexion with the sports club. They all partook of a common meal at tea-time, and in most cases symptoms began in twenty to twenty-four hours, with extremes of twelve to sixty hours. Bacteriological examination of the faeces was carried out in twelve cases without significant results. The two deaths which occurred during the time of the epidemic were both isolated cases, and were not of quite the same type as the others, but it was difficult to assign any other cause of death to them.

Fatal Cases

Case 1.—Male, aged 56. Previous health good. He complained of pains in arms and chest on morning of November 18th. At 12.30 a.m. on November 19th he was taken ill with acute epigastric pains, vomiting, and diarrhoea. He became very collapsed, and died at 5 p.m. on the next day. Post-mortem examination revealed a well-nourished man of good physique. The stomach and upper part of small intestine were distended. The stomach was sent to the analyst unopened and the interior was not seen. Small submucous haemorrhages were present in the small intestine. The large intestine was normal. All the other organs were normal.

Case 2.—Female (married), aged 44. Previous health good. On November 25th she complained of pain on the top of the head and epigastric discomfort. On November 29th she complained of nausea and was sick. There was slight diarrhoea and a general nervous tremor. There was no rise of pulse or temperature. She died suddenly and unexpectedly at 1.30 p.m. on the next day. Post-mortem examination revealed a woman of spare build. The interior of the stomach was intensely inflamed, and looked like raw beef. There was slight congestion of the lower end of the ileum, but there were no intestinal haemorrhages. There was very severe oedema of both lungs. The liver and kidneys showed severe parenchymatous degeneration, and the spleen was diffuent. The heart was normal.

A full bacteriological examination was carried out in both of these cases, but with the exception of a few colonies of *Staphylococcus aureus* from the spleen of Case 2, nothing significant was isolated. Analysis for inorganic poisons was also negative in both cases.

Epidemiological and Bacteriological Investigations

The private practitioners of the district were invited to co-operate in the discovery and investigation of cases, and an immediate and whole-hearted response resulted.