A CASE OF RAT-BITE FEVER IN ENGLAND.

RECOVERY OF THE SPIROCHAETE FROM
THE BLOOD.

BY

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Cases of rat-bite fever have been reported from time to time in England. The following case is of interest because of its typical clinical signs and because of the fact that the specific germ was isolated from it.

History.

On December 22nd, 1922, the patient was cutting up logs in a field when his dog began to scrape at what appeared to be a rabbit hole. Putting down his hand to catch the supposed rabbit, a rat bit him through the base of the left forefinger. The wound felt numb and bled freely. It healed up without any treatment in four days, without any pain or throbbing, and no immediate ill effects were felt. The rat was old and mangy, its coat being very patchy.

Symptoms.

Four weeks after the bite the patient noticed a painful swelling in the left axilla; this became larger and in two or three days fever began, with cold shivers, restlessness, queer feelings in the head, and sweating. The swelling disappeared in a couple of days, but the fever lasted about a week. No rash was noticed. A second pyrexial attack occurred a week later, this being more severe, with headache and pains in the muscles of the leg, profuse sweating, and two small areas of redness on the left forearm.

Attacks similar to this occurred at weekly intervals down to March 28th, 1923, when he was sent to Salisbury Infirmary as a case of rat-bite fever. While there some injections were given of the nature of which the patient was unaware. Further attacks then occurred, and finally he was sent up to the Hospital for Tropical Diseases to me by Dr. Knight of Tisbury, and admitted there on June 6th, 1923.

Condition on Admission.

The patient had fever. As regards the lymphatic glands the only definite enlargement noticed was in those of the inguinal group. The glands in the posterior triangle were just palpable; the axillary and epitrochlear glands were not enlarged; the heart and lungs were normal; the spleen at the costal margin was slightly tender; liver not enlarged. A well marked rash was present, blotchy, reddish-purple in colour, mainly present over the right side of the chest, slightly in the left supraclavicular fossa and left shoulder, none on back or legs. The rash was raised and somewhat tender. The blood count was as follows:

Red cells	...	...	...	...	...	5,000,000
White cells	...	...	...	...	...	16,000
Haemoglobin	...	...	...	...	...	90 per cent.
Differential count—						
Polymorphonuclears	...	...	...	...	...	77 per cent.
Large mononuclears	...	...	...	...	...	5 "
Lymphocytes	...	...	...	...	...	18 "
Eosinophiles	...	...	...	...	...	0 "

Lamblia cysts were present in the faeces, and there was a trace of albumin in the urine, with scanty granular casts. The Wassermann reaction was negative.

The causative spirochaete (? *Spironema morsus muris*) was seen in fresh blood by dark-ground illumination, and Dr. Robertson, assistant protozoologist, London School of Tropical Medicine, also succeeded in inoculating mice from the blood. The parasite was typical in every way, and I have left the description of it to Dr. Robertson, who is now engaged in working out the strain. The generic name of the parasite seems to be in doubt. Dr. Wenyon says it is not a *Leptospira*, and that probably it will have to be included in the *Spironema* group.

The treatment was the usual one of novarsenobillon injections, three in all being given—0.3 gram on June 19th, 0.3 gram again on June 26th, and a final dose of 0.45 gram on July 7th. The effect of these was instantaneous: the temperature fell quickly, the rash disappeared, and the patient felt well and fit. He left hospital on July 24th, and since that date has kept perfectly well.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CONGENITAL DIAPHRAGMATIC HERNIA.

I WAS recently called in by a midwife to see a newly born infant, the mother of which was a multipara who had worked at her usual occupation—that of chain-making—to within three days of her confinement. The presentation was apparently a normal vertex and the labour was rapid, so much so that the child was born twenty minutes before the arrival of the midwife.

When I arrived, about one hour after the birth, the child was dead. To all appearances it was healthy and well nourished, and the cord satisfactorily ligatured. The midwife assured me that the child had a healthy colour and was feebly crying when she arrived, and that it became "blue" shortly afterwards.

At the request of the coroner I performed a *post-mortem* examination, and found that the greater part of the right thorax contained small intestine, which was considerably congested and distended (two days after death). A small portion of the transverse colon was also protruding through a definite oval aperture, readily admitting three fingers; in the right diaphragm, through which also passed the small intestine. Owing to adhesions and dilatation I found it impossible to reduce the hernia. What little there was of the right lung was compressed against the posterior thoracic wall and was no larger than a five-shilling piece. No part of this lung floated in water. The left lung was many times larger than its companion and definitely floated in water. The stomach and duodenum were in the abdomen, and all the other organs were apparently normal.

It is interesting to note that the child was apparently living until it was picked up to be washed, the position, metaphorically, changing there and then from vertex to breech, thereby causing possibly immediate strangulation at the diaphragmatic aperture.

I think, taking all the facts into consideration, the primary cause of death was shock following the strangulation, and that the chief secondary cause was embarrassment of the heart and lungs due to a large diaphragmatic hernia.

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ABSORPTION OF KELOID.

THE condition described in the case recorded below I believe to be unusual, and it seems of sufficient interest to warrant publication.

W. B., a boy, aged 14 years, was admitted to Booth Hall Infirmary on October 23rd, 1923, suffering from impetigo of the scalp. During the routine examination a large scar was discovered, covering the whole of the anterior surface of the right leg from the lower margin of the patella to within two inches of the ankle-joint. This was the result of a scald eleven months earlier. The upper and greater part of this scar was shiny, and very vascular, but below it terminated in a keloid formation, which consisted of a main body with five claw-like offshoots, all raised above the surrounding surface, very hard, and of a pale pink colour. The keloid was firmly adherent to the underlying structures. Treatment was not adopted as excision of the scar at a later date was contemplated. After an uneventful stay of three weeks in the hospital the boy developed a mild tonsillitis, with a rise of temperature to 100°. On the following day he complained of headache, and towards night of irritation and burning under the keloid. No change in it was detected and no treatment ordered. On the next day he was found to be suffering from scarlet fever, and as he still complained bitterly of the pain in his leg it was again examined. It was then found that two claws had disappeared, being replaced by shimmering pink streaks. Within four hours of this, three claws had completely disappeared, and two remaining ones and the main body of the scar were becoming level with the surrounding tissue, and the adhesions between the scar and subcutaneous tissues had gone.

On his recovering from the attack of scarlet fever only two small portions of the remaining two claws were present; they were raised above the surface of the surrounding skin, and were hard. No part of the scar was adherent to the underlying tissues, and the rest of the keloid formation had been replaced by a supple, shiny scar. Both the reddened appearance and the irritation of the leg have disappeared.

I wish to thank Dr. J. D'Ewart for his kind permission to publish these notes.

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