CAT-SCRATCH DISEASE

REPORT ON TREATMENT OF TWO CASES

BY

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Since cat-scratch disease was first recognized independently by Foshay in the United States and Debré in Paris in 1932, considerable literature concerning the clinical features, first described by Debré *et al.* (1950), and the pathology (Greer and Keefer, 1951; Winship, 1953), has accumulated, though there have been reports of few cases in British publications (Brand and Finkel, 1956; Lyon, 1956; *Lancet*, 1960). Few writers have had sufficient experience to express their views on treatment, with the exception of Daniels and MacMurray (1954) in their survey of 160 cases and Spaulding and Hennessy (1960) of 83 cases. In the former group 27 and in the latter group 46 were personal cases; this tends to eliminate the idea of the disease being rare in the United States.

After a cat scratch, which may be followed by a local inflammatory skin lesion, infection of local lymph nodes without lymphangitis occurs. A granulomatous lymphadenitis develops and microabscesses may coalesce to form gross suppuration. The infection may spread centrally from one group of glands to another, a single upper extremity being most commonly involved, although the cervical inguinal, and even the mesenteric glands may less often be affected, depending on the source of the infected scratch. The infection lasts for several weeks or months, though when suppuration does not occur the condition may clear up in two to three weeks. In 52 of the 160 cases of Daniels and MacMurray (1954) fever lasted less than two weeks. The disease is commoner in children than in adults, presumably because of their greater liability to be scratched by cats.

Two cases with remarkably similar clinical features are described; in both children the hand scratches were multiple and the skin antigen test was positive.

Case 1

A boy of 13 consulted his doctor on January 1, 1962, with a tender, smooth, right epitrochlear gland, a tender axillary gland, and mild fever. He had had repeated cat scratches for several weeks. For a week before admission to Upton Hospital, on February 2, he had had transient diarrhoea and colicky abdominal pain; cultures from the stools were negative for pathogenic bacteria.

On admission he had enlarged fluctuant epitrochlear glands and a tender suppurating infraclavicular gland mass 3 in. (7.5 cm.) in diameter, with bluish discoloration of the overlying skin. An axillary gland was enlarged and tender. Temperature was 99° F. (37.2° C.). Heart, lungs, and abdomen were normal. There was evidence of recent healed scratches on the right hand. The haemoglobin was 89% and leucocytes 16,300/c.mm. (polymorphs 89%, lymphocytes 9%, eosinophils 2%). Chest x-ray examination revealed nothing abnormal. Complement-fixation test for psittacosis was negative. Skin antigen test for cat-scratch fever was strongly positive on February 8.

On February 10 and 14 greenish-yellow pus was aspirated from the epitrochlear abscess. Numerous pus cells but no organisms were seen on smear or grown by aerobic or anaerobic culture after 48 hours' incubation. Acid-fast bacilli were not seen. Culture and guinea-pig inoculation were negative. Inoculations of adult mice were negative for viruses.

Evening temperature rose to 99–99.6° F. (37.2–37.6° C.) but morning temperature was usually normal. This low-grade fever did not respond to a course of demethylchlortetracycline ("Iedermycin"), given for nine days from February 22, though the patient's condition gradually improved.

Owing to continued formation of pus, in spite of several aspirations he was operated on by Mr. R. Burkitt on March 1, by which time fluctuation was also evident in the axillary gland mass. "Separate incisions were made, a considerable amount of pus being evacuated. The infraclavicular abscess cavity was very extensive, tracking deeply into the pectoral muscles. The contents, consisting of pus and necrotic gland tissue, were very similar to that one finds when opening an inguinal abscess due to lymphogranuloma inguinale." The patient left hospital six days later.

Report on histology of pus and debris from lymph node: "Traces of residual lymphoid tissue are present with conspicuous increase in foamy reticular cells and fibroblasts. Several microabscesses are filled with necrotic material and degenerate polymorphs. At the periphery of these are a number of Langhans-type giant cells. The histological appearance is entirely compatible with the diagnosis of cat-scratch disease."

Case 2

A girl of 13 developed enlargement of the right epitrochlear gland four weeks before admission to Maidenhead Isolation Hospital. A week after the onset the infraclavicular glands and a posterior cervical gland were enlarged and tender. When admitted on April 12, as a case of glandular fever, she was pale and her temperature was 100° F. (37.8° C.). A fluctuant gland mass in the right supraclavicular fossa, enlarged infraclavicular glands of rubbery consistency, and a tender gland in the right axilla were noted. Several healed cat scratches on both hands were seen. The throat was injected. Heart and lungs were normal and the spleen was not enlarged. The haemoglobin was 84% and leucocytes 8,300/c.mm. (polymorphs 60%, lymphocytes 37%, mononuclears 3%). The Paul-Bunnell test was negative. No pathogens were cultured from nose and throat swabs. Intradermal skin antigen test was positive on April 17, when about 4 ml. of greenish pus was aspirated from the epitrochlear and cervical abscesses. Numerous pus cells were seen on smear but no bacteria. Aerobic and anaerobic cultures were negative. Acid-fast bacilli were not cultured.

A similar amount of pus was aspirated again, both from the neck and from the infraclavicular glands, on April 19.

During her first 15 days in hospital the evening temperature rose to 99–100° F. (37.2–37.8° C.). This fever was uninfluenced by the administration of oxytetracycline, 250 mg. six-hourly for seven days. By April 24 the axillary gland had also become fluctuant and the four gland abscesses were incised and curetted by Mr. J. Rowntree. Within 48 hours the fever subsided and did not subsequently recur. The four wounds healed in about 10 days, and though some indurated enlargement of the four separate groups of glands still remained this subsided during the next three weeks.

Diagnosis and Treatment

In these two remarkably similar cases the disease had begun a month before admission and fluctuating gland abscesses were present on admission. Diagnosis was suggested by the unilateral involvement of glands and the history of cat scratches; it was confirmed by the skin

antigen tests. In neither case did aspiration prevent further pus formation, so that open drainage was clearly required and was highly successful in terminating the course of the infection, though lymphadenitis must have persisted in a low-grade form for some time thereafter. There was no beneficial effect from the antibiotics, but this was as expected, gross suppuration being already obvious at the time of admission a month after the onset.

Spaulding and Hennessy (1960) record that 26 of their 83 cases progressed to gross suppuration between 12 and 40 days after the onset. They advise closed aspiration every day or on alternate days, and found that in only 6 of the 26 cases was aspiration required more than once. They regarded incision as inadvisable, owing to the risk of producing persistent sinuses. These views are not consistent with our experience in these two cases, as it became obvious that the abscesses would not have subsided with any other treatment than surgical drainage; this was successful and the incisions soon healed up.

Most writers agree that broad-spectrum antibiotics have no influence in preventing suppuration though they may reduce the degree of fever and, after surgical drainage, may promote healing. In mild cases which do not progress to the stage of suppuration conservative treatment is best employed, the infection subsiding within three to four weeks without the aid of any antibiotics.

Summary

Two cases of cat-scratch disease, both in children aged 13, are discussed. The clinical features were remarkably similar and both responded to treatment by surgical drainage and cleared up satisfactorily. No appreciable benefit was noted as a result of the employment of courses of demethylchlortetracycline in Case 1, or of oxytetracycline in Case 2, and suppuration occurred in all groups of infected lymph nodes in both cases. Various aspects of treatment of the disease are briefly discussed.

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Preliminary Communications

Secretor Status of Streptococcus Pyogenes Group A Carriers and Patients With Rheumatic Heart Disease or Acute Glomerulonephritis

Prompted by the studies of Glynn *et al.* (1959) on the possible relationship of the secretor status of patients to the occurrence of acute rheumatic fever, on which further data were published by Clarke *et al.* (1960) and briefly by Buckwalter *et al.* (1962), we began a study in 1961 on this and related points.

Although the study is not fully completed, some points have arisen which seem worthy of mention, especially as it is difficult to obtain enough material in one research centre, and extension of the survey to other centres would seem to be necessary.

The possible causal relationship between the secretor status of the patient and the occurrence of rheumatic fever may be explained in three ways: (1) a genetically determined higher attack rate of rheumatic fever after group A streptococcal infection in non-secretors; (2) a genetically determined higher infection rate with group A streptococci in non-secretors compared with secretors with the same attack rate for rheumatic fever in both groups; and (3) a combination of the two factors.

Preliminary data from our study tend to show that the second point may be of real importance. The carrier rate for group A streptococci was determined by taking throat swabs, which were cultured anaerobically on 5% sheep-blood-agar plates and in sheep-blood broth, and from which, after 48 hours, subcultures were made on blood-agar plates. This method produced the same result as when Pike's enrichment medium is used. The secretor status was determined with the haemagglutination-inhibition reaction, using extract from the *Ulex europaeus* as anti-H.

During a study of the carrier rate for beta-haemolytic streptococci group A in a random sample of about 11% of the total population of a village in Holland with 4,700 inhabitants, there was a definite preponderance of non-secretors among the carriers. Persons younger than 6 years of age were excluded from the sample. Table I gives the data for three consecutive monthly examinations of the same sample.

Of the 405 secretors and 97 non-secretors investigated three times, 102 secretors (25.2%) and 38 non-secretors (39.2%) had had group A streptococci on one or more occasions during these examinations ($P=0.025$). The apparent discrepancies in the number of patients in the three different investigations shown in Table I and the number of patients seen three times in these investigations are due to the fact that not all persons were seen three times.

TABLE I.—Throat Carriers of *S. pyogenes* Group A in Secretors and Non-secretors in a Random Sample of the Total Population Above the Age of 5 of a Village in Holland

Investigation	Total Series			Carriers of <i>Str. pyogenes</i> Group A		
	Total No.	Non-secretors		Total No.	Non-secretors	
		No.	%		No.	%
First	532	103	19.4	103	29	28.1
Second	547	107	19.6	83	24	28.9
Third	511	98	19.3	89	26	29.2

The blood-group distribution in this sample did not differ significantly for secretors and non-secretors, nor from the overall distribution for the people living in the Netherlands (Nijenhuis, 1961).

A further study on this point was made on military recruits on the day of their enlistment and after one month of training at the recruiting centre. The data are given in Table II. Again there is a preponderance of carriers of streptococci in the non-secretor groups in both samples, but the difference is significant only at a 5% level at the moment of enlistment. How far crowding in the barracks and the acquisition of new types influenced the difference