

A case of chronic melioidosis responding to tetracycline therapy

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MELIOIDOSIS, A GLANDERS-LIKE DISEASE, was first described in 1912 by Whitmore and Krishnaswamy who discovered it in the bodies of vagrants and morphine addicts brought to the public mortuary in Rangoon (Whitmore 1912). The following year it was recognised in the then Federated States of Malaya where it appeared as a severe epizootic among the guinea pigs and rabbits in the Institute for Medical Research laboratory in Kuala Lumpur (Fletcher 1919). In 1917, Stanton discovered human cases in Kuala Lumpur. Altogether, 39 cases were reported in Malaya between 1917 and 1929 (Stanton and Fletcher 1932).

The causative bacteria has been given a multitude of names, including *Pseudomonas pseudomallei* (according to the classification of Bergy 1957), *Pfeiferella Whitmori*, *Pf. pseudomallei*, *Bacillus Whitmori*, *Loefflerella Whitmori* and *L. pseudomallei*.

The disease is essentially one of rodents and is transmissible to man and is seen particularly in the region to the east and southeast of India. It is a widespread saprophyte found in soil, ditches and fields. Strauss et al (1969) found the organism in the surface water in Carey Island, off the coast

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of Selangor and postulated that the probable source is the underlying soil.

Man is probably infected by ingestion of food contaminated with the excreta of rats (Stanton and Fletcher 1932), by inhalation (Green 1968) or through skin abrasions. Experimentally, the disease has been found to be transmissible by the rat flea, *Xenopsylla cheopis*, and by the mosquito, *Aedes aegypti* (Blanc 1941). Direct man-to-man infection has not been reported.

In man, both acute and chronic forms of the disease are recognised, the majority of cases being of the acute variety which is fatal in about 95% of cases (Couture 1935). Occasionally, cases survive the acute stage and go on to a chronic stage which may last from a few months to several years. Rarely benign forms are seen which have very little constitutional symptoms and the patient presents with superficial abscesses (Green 1949). If treated with suitable antibiotics, these cases may respond well (Khaira 1959 and Maegraith 1964).

The case in this report is an example of chronic melioidosis presenting as multiple abscesses in a diabetic. His lesions appear to be responding to appropriate chemotherapy. The case is presented to emphasise the need to consider *Pseudomonas pseudomallei* infection in the differential diagnosis of abscesses.

Case report

A 42-year-old Indian gardener with a two-year history of diabetes mellitus was admitted on the 17th January 1972 to the Klang District Hospital for stabilisation of his condition. He had been hospitalised a month earlier for drainage of a perianal abscess.

Physical examination

There was slight pallor of the conjunctiva. He was afebrile. His blood pressure was 130/80 and pulse rate 72/min. All the peripheral pulses were palpable and there was no atrophy or ulcerations of the skin. The heart and lungs were normal while the liver was palpable one finger breadth below the costal margin.

Investigations: Hb	— 11.5 gm.%
Total white cell count	— 9,600/mm ³
Differential white cell count	— neutrophils 76%
	lymphocytes 22%
	monocytes 2%
	eosinophils 0%
	basophils 0%
Random blood sugar	— 684 mg.%

Blood urea	— 52 mg.%
E.C.G. and chest X-ray	— normal

Clinical course

The patient was put on a sliding scale of soluble insulin.

Three days after admission, he complained of pain in the right palm. Subsequently, it was found that the distal part of the palm over the third metacarpal bone was inflamed. The patient became febrile. A diagnosis of suppurative tenosynovitis was made and a drainage procedure was done. The patient was put on crystalline penicillin and streptomycin.

In spite of the treatment, the patient continued to have a swinging temperature. A week later, he complained of pain over the left ankle. The posterior part of the foot, inferior to the medial malleolus, was inflamed and a few days later an abscess formed. It was drained and pus sent for bacteriological examination showed growth of *Pseudomonas pseudomallei*. According to the sensitivity reports, the penicillin and streptomycin were discontinued and the patient was put on bactrim.

The fever persisted. A sinus developed over the abscess site. Within the next week, he developed three more abscesses on the dorsum of the same foot. These abscesses were drained and *Pseudomonas pseudomallei* was isolated from all of them. Sinuses formed at these abscess sites. X-ray of the hand and foot showed no bone lesion.

Bactrim was discontinued after one week and tetracycline, 250 mg. six-hourly, was instituted. His fever subsided after two weeks of tetracycline. Repeated bacteriological examination of the sinuses have since then been negative. The sinuses are granulating well. We intend to continue tetracycline therapy until the lesions are fully healed.

Bacteriology

The specimen sent was pus from the abscess in the left ankle. Direct smear showed many gram negative rods. Primary culture was done on blood agar and further sub-cultures were done on glycerine agar and MacConkey plate. Gram staining of isolated colonies showed gram negative rods with clear bi-polar staining giving a "closed safety pin" appearance.

On glycerine agar, the colonies were grey, opaque, with a raised centre and radial striations towards the periphery. The edge was crenated and the surface rough giving it a wrinkled, corrugated appearance. There was a thick surface pellicle on

broth cultures. The strain was actively motile. On blood agar and MacConkey, the colonies had a metallic sheen.

The sensitivity pattern of the strain was as follows:—

Sensitive to bactrim, chloramphenicol, tetracycline and sulphadiazine.

Resistant to methicillin, ampicillin, penicillin G, erythromycin, gentamycin and polymyxin B.

The strain did not ferment glucose, mannitol, dulcitol, inositol, adonitol, salicin, sucrose and lactose. It was also negative for the indole, methyl red and voges-proskauer reactions. However, citrate was utilised. The oxidase reaction was positive. The findings were highly suggestive of *Pseudomonas pseudomallei* and Strauss's reaction was carried out as a confirmatory test. 0.2 ml. of bacterial suspension was injected intraperitoneally into a guinea pig. When examined 48 hours later, there was swelling and inflammation of the testes. *Pseudomonas pseudomallei* was cultured from this swelling.

Discussion

Three interesting features are seen in the case reported. These are that the patient is a diabetic, that he is a gardener and that his lesions are responding well to tetracycline therapy.

The fact that he is a diabetic lends support to the view that melioidosis appears to be more common in persons with debilitating disease. Whitmore's (1912) original cases were mainly in morphine addicts and debilitated beggars. Remington (1962) reported five cases of melioidosis where three of the patients were diabetics, one a chronic nephrotic and the other had cystic disease of the lung associated with pregnancy.

Tarlow (1971) reported a case of melioidosis

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in a three-year-old boy who had chronic granulomatous disease.

The patient is a gardener and since *Pseudomonas pseudomallei* is known to be a widespread saprophyte of moist soil, it is possible that the mode of infection was through contamination of skin abrasions.

Similar to the cases reported by Khaira (1959), Maeraith (1964) and Tarlow (1971), the patient is responding to chemotherapy. Sensitivity tests showed that the strain isolated from the patient was sensitive to bactrim, chloramphenicol, tetracycline and sulphadiazine. It will be noted that the patient was put on bactrim for a week and since the condition appeared to be getting progressively worse tetracycline was given instead. The response was then favourable.

Summary

An Indian gardener, a diabetic, presented with multiple abscesses in the palm and foot. Bacteriological examination of pus from these abscesses revealed *Pseudomonas pseudomallei* infection. The majority of cases of melioidosis reported in the literature have been of the acute, fatal variety while this patient falls into the smaller group of cases of chronic melioidosis which is amenable to suitable chemotherapy. At the time of writing, the patient appears to be responding very well to tetracycline.

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