

RESEARCH NOTE

EIGHT CUTANEOUS LEISHMANIASIS CASES DETECTED IN KARAMAY, XINJIANG UYGUR AUTONOMOUS REGION, CHINA

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Whether cutaneous leishmaniasis exists in China is a problem of concern in the international field of parasitology. Zhang and Hu (1983) found a girl aged 15 with mild hepatomegaly and cutaneous ulcer on her right cheek in Shawan County of Xinjiang; *Leishmania* was detected in both the exudates and biopsy tissues, but the parasite was not detected in a bone marrow smear. Notwithstanding the fact that visceral leishmaniasis (VL) had never been reported in the locality, the authors deemed that the dermal lesion was induced by *Leishmania donovani*, hence named it as dermal 'leishmaniasis donovani'. Ren and Cui (1984) reported 8 'cutaneous leishmaniasis cases' in petrol workers in Karamay, but though parasitological examinations of the tissue smears of the lesions were performed several times by some veteran parasitologists, *Leishmania* still could not be found.

During the years 1988-1991, we made surveys on cutaneous leishmaniasis on Xiaoguai Farm and Baijiantan, Karamay, a non-endemic area of VL. Eight cases of cutaneous leishmaniasis without previous evidence of VL were discovered, all being confirmed parasitologically; three (a child, a farmer, a petrol worker) of them were already reported previously (Guan *et al.*, 1989; Ren *et al.*, 1991); the other 5 (a child, 3 farmers, a petrol worker) were found in 1991. This paper presents a generalized introduction of the 8 cases of cutaneous leishmaniasis.

Age, sex and course

Four of the 8 patients were local farmers, while the other 4 cases came from non-endemic areas, but acquired cutaneous leishmaniasis after working and/or living at Karamay. The youngest one was only 8-months old, and the oldest, 50 years of age. Five were males and three were females. The shortest disease course of 2 months was seen in

the infant who came from Shanghai to Xiaoguai Farm in August 1991; the *Leishmania* parasite was detected in the lesion in October of the same year; while the longest course was revealed in a farmer coming to the Farm from Sichuan Province: the dermal lesion had been present for nearly 5 years. For the rest, the course was no more than one year.

Signs and symptoms

All the 8 cases had a history of being stung by insects. Some complained that the lesion appeared exactly at the same site of insect sting. The primary lesion was a papule or a nodule, then ulceration was formed some 3-5 months later, and the peripheral rim was protrudent, so the ulcer was just like the summit of a volcano. There were light-yellowish exudates intermingled with the degenerated and necrotic dermal tissues covering the surface of the ulcer and forming a crust. The ulcer was surrounded by a large area of furfuraceous changes of the skin in one case, which was misdiagnosed as psoriasis (Ren *et al.*, 1991). Two of the patients had lesions on the face (Fig 1), four on the upper limb, one on the lower limb (Fig 2), one on the back. The number of the lesions was mostly 1-3, the maximal being more than 10. Bleeding was often the case, caused by scratching for the pruritus, and a new scab was thus formed. Sometimes, secondary infection occurred and the ulcer was enlarged. Neither fever nor hepatomegaly and splenomegaly was in evidence.

Laboratory findings

The routine blood cell counts (WBC, RBC and WBC differential) of 3 patients fell into the normal range. Leishmanin intradermal test in 4 cases was positive, and the diameter of the induration of the injection site reached 0.8-1.0 cm.

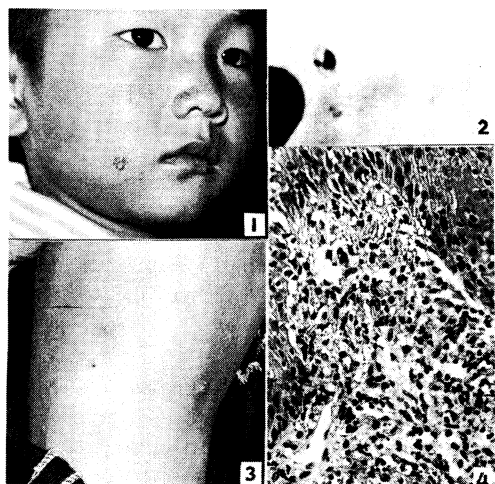


Fig 1—A 6-years-old boy, with a cutaneous lesion on the right cheek.

Fig 2—*Leishmania* amastigote in smear taken from the lesion (x1000).

Fig 3—A 46-years-old man, cutaneous lesions on the right leg.

Fig 4—Section showing numerous *Leishmania* in macrophages in skin (HE × 400).

Parasitological and histological studies

Tissue smears tinted with Giemsa's stain were made for all the 8 patients and biopsy specimens tinted with HE stain were made for 6 cases. *Leishmania* parasite was detected in all under microscope (Fig 3). Histo-pathological study on the tissue biopsy specimens showed that a lot of *Leishmania* parasites were harbored in the macrophages of the dermis and the interstitial tissues, while infiltration of numerous lymphocytes with occasional presence of neutrophils was concurrently seen. Degeneration of collagenous fibers to various degrees was demonstrated. A few parasites were situated between the basal and spinous cells of the epidermis and in the cytoplasm of the spinous cells as well (Fig 4). When the course of the lesion was prolonged to one year or more, the number of *Leishmania* parasites was lessened, and only few lymphocytes were viewed.

Treatment and follow-up study

The lesions of 3 cases spontaneously healed 12-14 months after the occurrence of the lesion and scars remained without taking any drug. excision of the affected skin was performed on the other 3. For the infant, cryotherapy was applied

to move the nodule. Sodium stibogluconate 0.6g/day × 4 was given to the last case, and a second course of the regimen was employed at an interval of 3-4 days; the case was clinically cured after taking 4 therapeutic courses and is still under follow-up study.

Pathogenicity of *Leishmania* sp from the great gerbil in humans

In the wilderness of Xiaoguai Farm and Baijiantan, Karamay, exist burrows of great gerbils. Of the auricular tissue smears taken from 27 great gerbils, 17 (63.0%) were found to harbor *Leishmania* parasites. The isolated parasites were cultivated in NNN medium and then 4.8 million of the promastigotes from the medium were inoculated subcutaneously into the forearms of 2 healthy persons. Dermal lesions identical to the skin sore of the local cases appeared at the site of inoculations 128 days later, and *Leishmania* sp was detected from the lesion. It is deduced that the *Leishmania* species detected from the auricle of the great gerbils might act as pathogens of human cutaneous leishmaniasis *in situ*, however, further parasitological, entomological and clinical studies should be pursued to elucidate the problem.

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