# CREEPING ERUPTIONS

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The first case of creeping eruption was described in England in 1875 and another case in 1885 by R.J. Lee (1885). This condition is also known as larva migrans, myiasis linearis and sandworm.

The onset of the disease is characterised by a migrating tortuous lesion of the skin and is accompanied by intense itching. The lesion often begins as an itchy papule resembling the effect of the mosquito bite. The papule may develop into bullous and linear lesion in 1 to 4 days. Often the lesion is preceded by a narrow line of erythema. The average daily migration is probably a fraction of an inch but some may go on to several inches. As the larva migrates, the old portion heals, leaving either a hypopigmented or hyperpigmented area. The course of the disease is usually variable extending from a few days to several months. Often the part is scratched and the bullous eruption is ruptured; then secondary infection sets in, altering the original picture. Sometimes contact dermatitis may result from application of different chemicals as a result of misdiagnosis.

This condition is not uncommon among the Europeans, but is relatively rare among the Asians. Schacher and Danaraj (1957) reported 5 cases locally — one American and 4 Caucasians. In their survey they found that this condition is rare among the local population and that few local physicians had noted this condition. Whenever it was encountered, it was invariably in a European patient. Khoo (1954) in his survey of 1,000 cases of skin conditions in Singapore made no mention of this condition at all. In a study of 301 cases in Jacksonville, Florida, U.S.A., Dove (1932) found that only 5 cases were seen in negroes (7.66%); although half the population of this city was negroes. Sandosham (1955) reported that in pre-war days, the cases encountered were mostly Europeans. Because of the rarity of this disease in Asians and negroes we are reporting 4 cases occurring in the local population.

## CASE REPORTS

### CASE 1

C.J.S. a Chinese male aged 27, working as a motor car fitter was seen on the 17th May, 1962, with the complaint of linear vesicular eruption on his right forearm for one week. The eruption was very itchy. The vesicular eruption progressed day by day in a rather tortuous fashion, while the older part of the lesion seemed to have healed spontaneously. He gave no history of having a dog or cat at home. On examination, a raised linear tortuous vesicular eruption was seen on the right forearm (Figure 1). Incidentally the lesion was covered with adhesive plaster and there was evidence of allergic rash due to plaster. There was also secondary infection as a result of scratching. The total white cell count was 13,400 with an eosinophilia of 1%. The bullous was ruptured and fluid obtained was examined for parasite, but the result was negative. A biopsy of the lesion was done. The part of the skin taken was at the progressing end of the track, which is believed to contain the parasite.

The section revealed the following features:

(a) Hyperkeratosis and one spot of parakeratosis. Micro-abscess in the stratum corneum.
(b) Acanthosis.
(c) An odd cell showing dyskeratosis.
(d) Chronic infiltrate in the dermis with no eosinophils. No parasite was seen.

He was treated with ethyl chloride spray for 3 minutes once only. 2 days later he was seen again in the outpatient, the track seemed to remain in the same spot as was first seen. The bullous eruption subsided and there was no more itch (Figure 2).

### CASE 2

A 7 year old Sikh girl, who about 1 month prior to being seen was living in Borneo. The history given by her mother was that 3-4 days before she was seen, the child pointed to her a raised eruption on the instep of the child's right foot. It was very itchy. Then the lesion began to spread upwards crawling along the medial border of the foot to the dorsum of the foot (Figure 3). When examined, the old part of the lesion was hyperpigmented and seemed to have healed up, but the progressing end of the lesion was a line of tortuous bulla. She was treated with ethyl chloride spray and was cured. When last seen there was hardly a trace of creeping eruption.

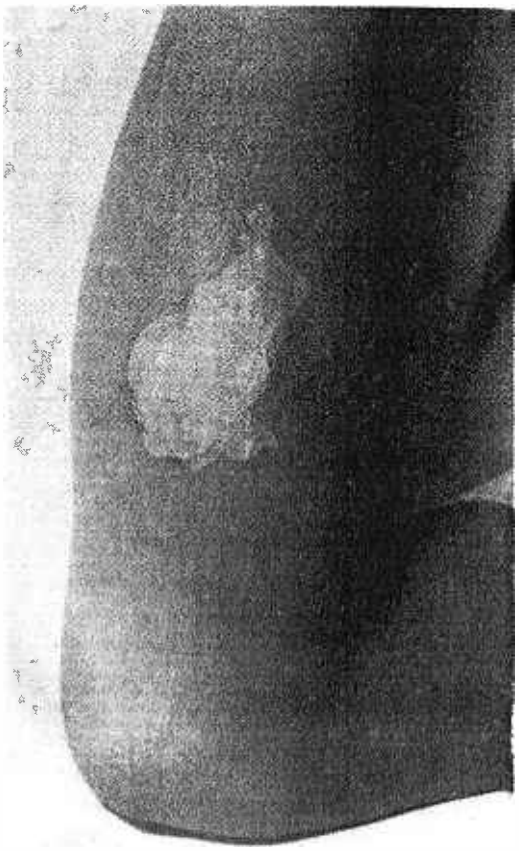

Fig. 1. Case 1.

Fig. 2. Case 1.

Fig. 3. Case 2.

CASE 3

A Chinese male adult came with the complaint of an itchy rash on the flexor surface of the lower one third of the right forearm. It started to spread and because of the itch he scratched a great deal and this was followed by secondary infection. As a result of the secondary infection the true nature of the lesion was masked, so he was given hydrocortisone and neomycin cream. He has a dog and looks after it himself. About one week later, the secondary infection cleared, the obvious crawling raised erythema was seen. The advance of this linear and tortuous erythema was towards the palm and after having reached crease of the wrist, turned backwards. The daily progress was about one centimetre. He was treated with ethyl chloride spray and the erythema became stagnant, but did not completely disappear. So he was given a course of Hetrazan (diethylcarbamazine) 100 mg. t.d.s. for one week. The eruption completely disappeared leaving no scar behind.

CASE 4

A Chinese male adult gave the history that one day he felt a stinging sensation on his right palm. When he went home he applied an antiseptic lotion 'Dettol'. A week after that he noticed that he had what he called 'red hot tunnel' along the thenar eminence of his right palm. He went to see his own doctor and was treated with some ointment. There was no improvement and instead the line crept further. Not only was very itchy, but he also had a feeling of hot sensation along the lesion. He was then seen by one of us and was diagnosed as creeping eruption. The affected part was frozen with ethyl chloride, but it did not improve. The linear erythema progressed towards the base of the third finger. This time local injection of chloroform was carried out. Although the lesion healed it took about 3 weeks to heal and soon after the injection, there was a local reaction. The whole palm was swollen.

He had no dog although his neighbours had. He did not play with them either.

## DISCUSSION

The diagnosis of this condition can be missed if the original lesion is masked by secondary infection, as in Case 3. The characteristic feature of creeping eruption is the daily advance of the tortuous, linear erythema or the bullous eruption.

Various parasites have been said to cause this condition. Morishita and Faust (1925) reported 2 cases from China to be due to Gnathostoma. Tamura (1921) observed a similar case in Japan. The cases reported by Schacher and Danaraj (1957) failed to reveal the aetiological agent, but they think that ankylostoma braziliense or ankylostoma ceylanicum or ankylostoma caninum is the most likely parasite to cause creeping eruption in this country because Schacher in his unpublished survey of animal parasites in Singapore found that a high percentage of cats and dogs have A. braziliense or A. ceylanicum and especially in dogs A. caninum. Sandosham (1952) in his study of 9 cases of creeping eruption in the buttock regions in ex-prisoners of war found that they had Strongyloides stercoralis and he thought this was the most likely cause in these patients although both he and Professor Buckley had larvae inoculated into them, yet they failed to get eruption on them. However, Dove showed conclusively in America that the cause of creeping eruption is A. braziliense. In the above 4 cases no parasite was found although it must be admitted that only in Case 1 was a fairly intensive search made for the aetiological agent. The absence of parasite in the biopsy does not exclude the possibility of the parasite as the causative agent. The fact that ethyl chloride spray had to be applied tends to suggest that the biopsy was taken at the wrong place and the site where the parasite was most likely to be was missed. We feel that in future cases if greater efforts are made we may be able to isolate the parasite. In the meantime we are not able to say for certain what actual parasite is responsible, but judging from the history of Case 3, who looks after the dog himself, Case 4 who while looking after his own garden might have come into contact with the grass or sand that has been contaminated by his neighbours' dogs, and in Case 3 he might have come into contact with the contaminated ground while repairing the motor cars, we feel that a likely cause is the dog or cat hookworm.

The local population on the whole are not particularly fond of animals especially dogs and cats as compared to the Europeans, although the trend may be changing now. In fact the Malays are not allowed to touch dogs. For this reason, the dogs are not often brought to beaches for exercise, and, therefore, the beaches are less likely to be infested with dog hookworm. This might partly explain the rarity of this condition. It is also possible that this being a simple condition to recognise and to treat, many of these cases are being treated by private practitioners without being referred to the hospital. The cases which are seen in the hospital are either those with complications or those who

cannot afford to go to private practitioners. Furthermore these conditions may be referred to dermatologists instead of to general physicians. Hookworm infection is fairly common among the children of the local population especially of the lower income group. It is possible that as a result of this infection the body develops the immunity which might offer resistance to the animal hookworm infection. Nevertheless it must be admitted that the racial difference in the susceptibility of creeping eruption is still not fully understood.

Various methods have been advocated for the treatment of this condition. The case of Schacher and Danaraj was treated with hetrazan and was considered to have failed, although Horton treated 13 patients with hetrazan with only two known failures. Treatment with ethyl chloride is not only cheap and simple — one spray for 3-5 minutes is sufficient, but is also without reaction as is sometimes seen with hetrazan. The response to this therapy is good as shown by the result of 3 out of 4 cases of ours. In Case 3, after spraying the eruption failed to advance any further and in retrospect, he would have easily been cured all the same even if we had not given him hetrazan. In our opinion the best treatment for creeping eruption is ethyl chloride spray, although in resistant cases other measures like local injection of chloroform may have to be used.

## SUMMARY

1. 4 cases of creeping eruption occurring in Asians are reported.

2. Although no definite parasite has been found responsible for this condition a short review of the definite and possible causes is made.

3. The treatment of choice is ethyl chloride spray.

## ACKNOWLEDGMENTS

We would like to thank Dr. Koh Kim Yam for allowing us to publish the first 2 cases which were seen in the Middle Road Hospital.

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