THE CLINICAL APPEARANCE OF HAND, FOOT AND MOUTH DISEASE*

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There has recently been another epidemic of hand, foot and mouth disease in the Transvaal. A number of cases occurred in Johannesburg between July and December 1968, and reports of further cases were received from the Reef, Pretoria and Middelburg. On random enquiry it became clear that many general practitioners had seen cases of this mild, vesicular disease without being aware of its cause.

1968 JOHANNESBURG EPIDEMIC: THE CLINICAL PICTURE

We saw 20 cases of hand, foot and mouth disease in Johannesburg during the early and midsummer months of September - December 1968. It transpired that similar cases were being seen by a number of colleagues, and Levin and Measroch reported 12 cases seen between July and September of the same year.[26]

Most of the 20 patients seen were children under 4 years of age, but a few older children and adults were seen. In all cases the illness was of a mild and transient nature. An incubation period of 3 - 6 days is average for the disease and was noted among cases in this outbreak caused by cross-infection within families. Prodromata were minimal, and at the most comprised a day or two of malaise and mild pyrexia.

The usual presenting feature in other epidemics has been a painful stomatitis preceding the skin rash by a day or two. Oval blisters appear in the mouth and soon shed their roofs, leaving painful erosions which take some 4 or 5 days to heal. Stomatitis was not a prominent feature of the present epidemic, although a proportion of the cases were found to have oval aphthae in the mouth averaging $\frac{1}{2}$ - 1 cm. in length and occurring somewhere on the palate, fauces, buccal mucosa, tongue and on the inside of the lips. Medical advice was sought when a vesicular rash had developed on the hands and feet. This usually involved the palms and soles (Figs. 1 and 2), but scattered vesicles were sometimes present on the dorsal and lateral surfaces of the hands, fingers, feet and toes. These blisters were characteristic and were covered by a thin layer of skin of a pearly-grey colour, surrounded by a narrow, red areola (Fig. 3). They were usually elongated rather than round, and oval or rhomboidal in shape, with the long axis of the lesion arranged parallel to the skin lines. Slightly tense and perhaps tender at first, the blisters soon became flaccid and painless, and flattened and dried out within a few days.

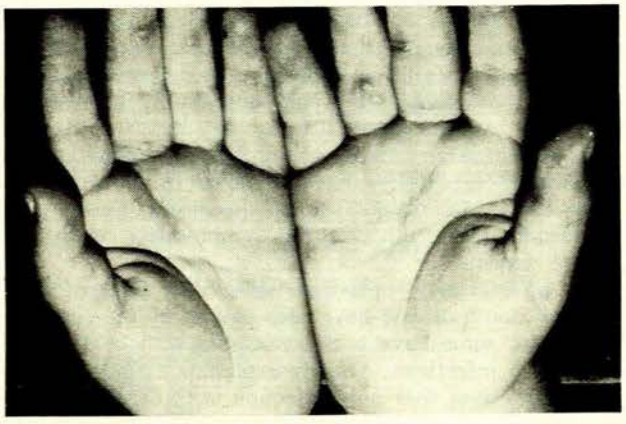

Fig. 1. The vesicular eruption on the palms.

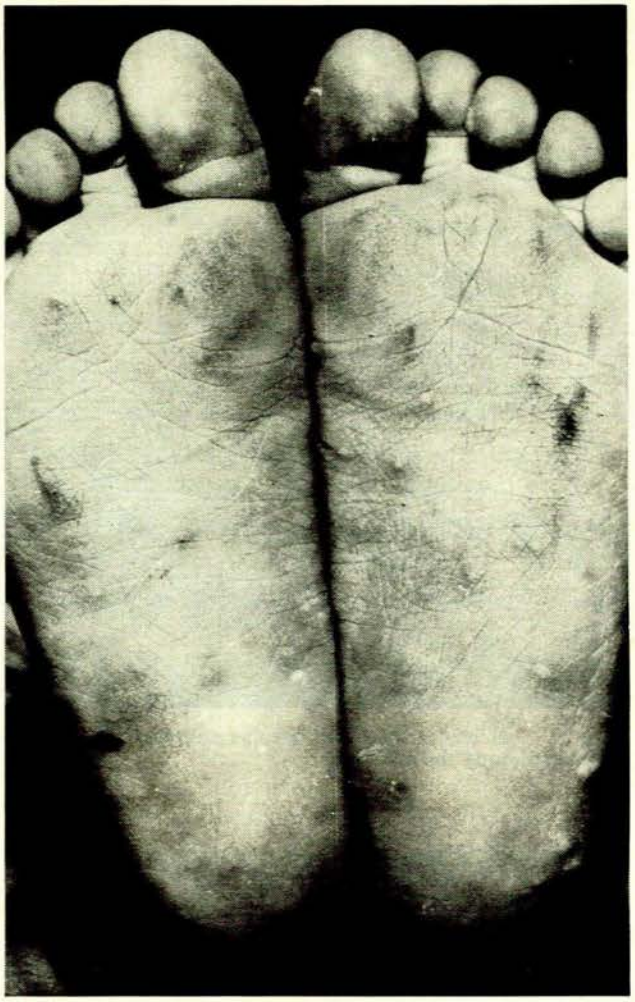

Fig. 2. The vesicular eruption on the soles.

A characteristic feature of the patients below 4 years of age, but not of the few older children and adults seen, was the presence of a striking, red, maculopapular rash of the buttocks (Fig. 4), which developed shortly before the vesicles on the hands and feet. These lesions were usually solid and only occasionally topped by a vesicular element. Though usually confined to the buttocks, lesions were sometimes found scattered elsewhere on the back, abdomen or limbs. It has been suggested, not inappropriately,

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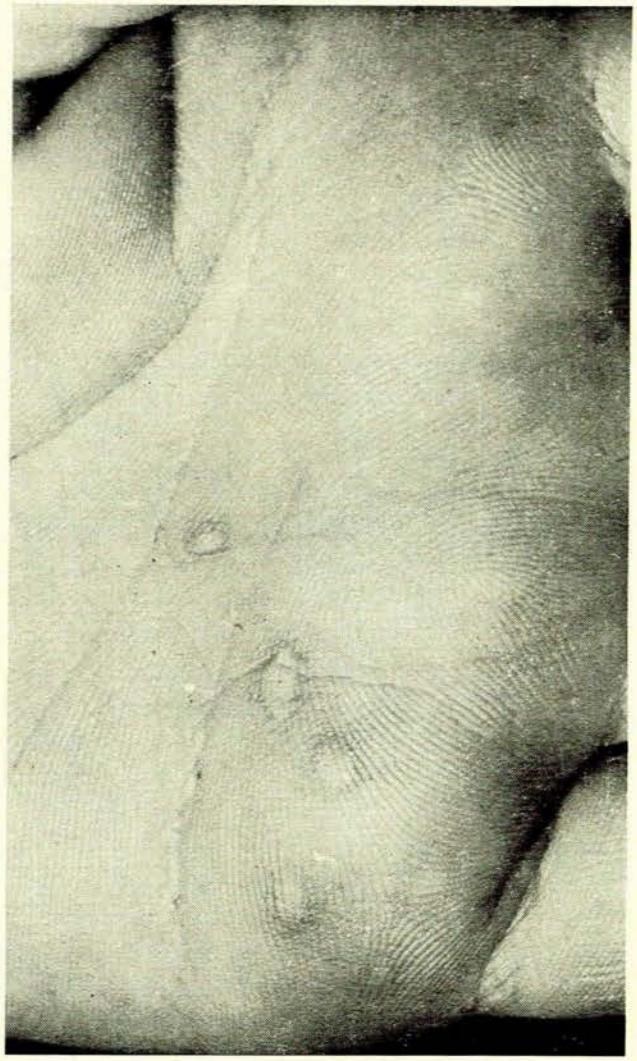

Fig. 3. Oval blisters with red areolae and their long axes arranged along the skin lines.

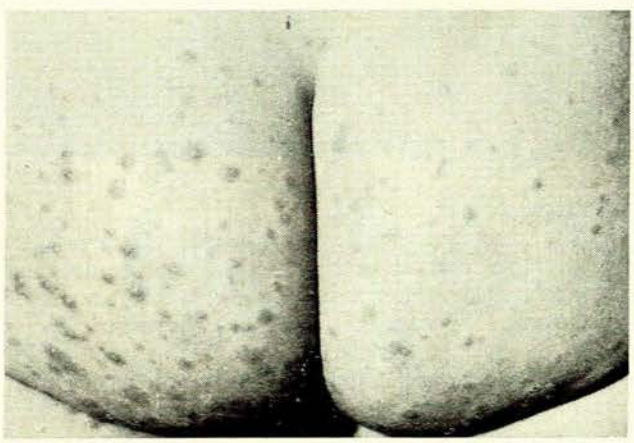

Fig. 4. Maculopapular lesions on the buttocks.

that a better name for this condition in young children would be 'hands, mouth and bumps-a-daisy disease'.

Most patients were little affected by the disease, although a proportion were feverish and fretful, off their food, had vague abdominal discomfort, and slept poorly for a few nights. The skin rash began to clear within 3 or 4 days, and there was usually no sign of it within a week, nor were there any after-effects. There is no specific treatment for the disease, nor is it needed.

A group A, type 16 coxsackie virus was isolated in certain cases so tested from the throat, blood and stool or from the blister fluid. A rising titre to this virus was also demonstrated by neutralization tests. Although skin biopsies were not performed during this epidemic, it is known that the blisters show, histologically, intra-epidermal vesicles with the reticular degeneration and cell ballooning characteristic of a viral infection.

PREVIOUS REPORTS OF HAND, FOOT AND MOUTH DISEASE

Hand, foot and mouth disease is, with a few exceptions,[21,26] a disease of early and midsummer, and is quite unrelated to the foot and mouth disease of cattle. It was first described by Robinson *et al.*, who investigated an epidemic which occurred in Toronto in the early summer of 1957.[36,37] They described a triad of fever, mouth ulcers and a bullous exanthem occurring mostly in children of 1 - 9 years, and were able to show that a group A coxsackie virus, type 16, was the cause. Norton subsequently reported 5 similar cases which he had seen in Sydney in the spring of 1956; 4 children had vesicles on the palms and soles, but the mother of 2 of them had oral aphthae only.[33] Hand, foot and mouth disease due, where tested, to coxsackie A 16 virus has now been reported from Great Britain,[1,2,6,13-15,21,22,27,29,30,34,39,40] the USA,[7-9,17,28,31,35,41] Australia,[38] South Africa,[18,25,26] Denmark,[23] Germany[4,5] and Czechoslovakia.[24] Sporadic cases in Great Britain,[10,11] South Africa[20] and New Zealand[3,12] were caused by the coxsackie A 10 virus, and some cases in Great Britain[16] and in the USA[31] were associated with a coxsackie A 5 infection. Judging by the recent flow of reports, the disease is now well recognized in many parts of the world and appears to be becoming more common.

DISCUSSION

Hand, foot and mouth disease is yet another of the mild exanthematous diseases that invariably are seen only by the general practitioner. In its fully developed form the disease is easy to recognize and should not readily be confused with other exanthemata. It may sometimes present in adults merely as an episode of aphthous stomatitis, and so falls within the differential diagnosis of non-recurring mouth ulcers. Latent cases may also occur, as the virus has been found in the stools of symptomless relatives of affected patients.[22]

It is of interest to note that while most cases of hand, foot and mouth disease have been caused by the coxsackie A 16 virus, some have been associated with coxsackie A 10 and A 5 infections. A likely explanation for this is the recent suggestion that only infection with coxsackie A 16 reaches epidemic proportions, because most children soon develop an immunity to the commonly occurring A 10 and A 5 viruses.[22]

Coxsackie A 16 virus infection is invariably associated with a mild disease, but a few exceptions have been reported. One infant died of myocarditis[29] and another of meningo-encephalitis.[42] An older child was severely ill with meningo-encephalitis and a widespread bullous eruption,[39] while another developed a generalized vesicular eruption complicating a constitutional eczema.[32] Lastly, an elderly female patient has been reported with a blistered eruption persisting for 2½ years.[24] However, as hand, foot and mouth disease mostly affects children of 1 - 9 years, untoward complications need not be expected.

SUMMARY

The clinical manifestations of the mild and transient illness known as hand, foot and mouth disease are described. The disease is associated with minimal constitutional disturbance, aphthous lesions in the mouth, and characteristic blisters on the hands and feet. The epidemic forms of the disease are associated with a coxsackie A 16 virus infection, but sporadic cases have been caused by the coxsackie A 10 and A 5 viruses. No treatment is required.

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