the time of the encephalopathy, and has given permission to quote the results of the neurological investigations conducted.

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Gangrene of Digits after Chicken-pox

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Chicken-pox is a highly contagious and therefore relatively common viral infection in children. In this age group peripheral gangrene is a particularly rare condition. A recent case is described here.

CASE REPORT

A 6-year-old white boy was admitted primarily for social reasons to the infectious disease unit of Hither Green Hospital eight days after developing the typical rash of chicken-pox. He had a rash compatible with eight-day chicken-pox involving the trunk and limbs. No other appreciable abnormalities were noted, except that he was mentally retarded. There were no signs of secondary infection.

Two days after admission a slight blue discoloration of the left hand was noticed (see Fig.), and in the next three hours the entire left hand and lower third of the ulnar side of the forearm became cyanosed. The area was tender and

Digital gangrene in a 6-year-old boy

swollen, though the skin was warm and did not blanch on pressure and the peripheral pulses were palpable. The right hand and foot showed similar changes but to a lesser degree. He remained unconcerned and afebrile. Over the next 18 hours the right hand and foot gradually resumed a normal appearance, but the left upper extremity remained grossly swollen, despite elevation. The changes persisted and the tips of all four fingers became

gangrenous three days later. Secondary infection with *Staphylococcus aureus* occurred as a result of persistent interference with the dressings by the patient but was controlled with penicillin.

At that time he had a white cell count of 15,000 mm.³ with an essentially normal differential. Serum protein electrophoresis showed an increase in the α_2 fraction and the immunoglobulin IgM level was 25 mg./100 ml. The A.S.O. titre was 320 Todd units and six weeks later was 160 Todd units/100 ml. All other routine investigations including coagulation studies and a search for agglutinins were negative. Subsequent plethysmographic measurements on the affected hand showed normal blood flow.

A month later he was transferred to the Evelina Hospital for surgical assessment. The finger-tips were dry, black, and necrotic. The gangrenous areas became well demarcated and six weeks after onset were trimmed. Despite mummification, histology demonstrated the digital arteries in a transverse section of the largest specimens. These were distended by what appeared to be organized thrombus, and the internal elastic lamina and media appeared well preserved and showed no evidence of arteritis. The fingertips healed satisfactorily and further progress was uneventful.

COMMENT

The mode of onset and distribution of the lesions corresponded to the description by Lewis and Pickering (1934) of "bilateral gangrene of the digits in the young and with infection." Their review of the literature on peripheral gangrene included many cases with associated generalized infections, but none with chicken-pox. Jepson (1956) tabulated disease processes described in conjunction with symmetrical digital gangrene and considered separately those without apparent cause. He thought the disease in this latter group to be self-limiting and to have a good prognosis. Wishik and Bullowa (1935) catalogued the complications seen in 2,534 cases of chicken-pox between 1929 and 1933. One of these was a 3-year-old boy with mild varicella who developed discoloration and eventually gangrene of the digits. They stated: "at no time did the patient seem very ill, toxæmic or prostrated."

The clinical findings in the present case were those of venous gangrene. The delay between the onset of the infectious disease and the appearance of the vascular disorder parallels that found in purpura fulminans. The laboratory tests, however, gave no indication of a generalized consumptive coagulopathy which might have been associated with intravascular coagulation. In retrospect measurements of the fibrin degradation products might have yielded more information at that time. Assuming endothelial damage to the peripheral vessels, which Cheatham *et al.* (1956) reported as a result of viral invasion, it is conceivable that platelets might have adhered locally but that irreversible aggregation took place only in the left hand.

No convincing evidence was found in this case for a causative lesion other than the preceding infection with chicken-pox and a suspicion of coexistent streptococcal infection, as shown by a small rise in the A.S.O. titre.

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