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Medical Memoranda

Herpes Zoster Occurring in a Patient with Chicken-pox

Clinical and epidemiological observations suggest that chicken-pox and zoster are caused by the one virus, and recent laboratory studies on the growth in tissue culture of virus from the two clinical entities support this view (Weller *et al.*, 1958; Weller and Witton, 1958). Though 2-5% of zoster patients develop a generalized rash, sometimes profuse enough to be typical of chicken-pox, it is much less common for chicken-pox patients to develop a secondary eruption with a typical zoster distribution. Stokes (1959) indicates that this is not an uncommon observation, but very few instances are recorded in the literature. Allen (1944) reported a case of chicken-pox in a boy aged 5 years who developed a zoster eruption on the right side of his body three weeks after the onset of chicken-pox. Cheatham *et al.* (1956) described the case of a 4-year-old boy suffering from a neuroblastoma with multiple metastases who developed chicken-pox and died 17 days after its onset. At necropsy a zoster eruption was found on the right side of the abdomen and back, corresponding to sensory innervation from T10. Another example of a zoster eruption developing in a patient suffering from chicken-pox is mentioned below.

CASE REPORT

An outbreak of chicken-pox occurred in a boys' boarding-school. The onset of illness in the first case was on January 21. This was followed by eight other cases between February 5 and 7, and a further eight between February 21 and 25.

On March 12 the last case occurred in a boy of 8 years who had not had chicken-pox previously. His eruption

Vesicles in right cervical sensory area, associated with extreme hyperaesthesia of surrounding skin.

was sparse, as in all the other cases in this outbreak. On March 18, when fresh lesions had not been noted for several days, 10 vesicles appeared in the right cervical sensory area (C3). They were associated with extreme hyperaesthesia of the surrounding skin, as indicated in the accompanying Figure, and the patient, though otherwise feeling quite well, was very reluctant to undergo examination. The lesions became purulent by March 21, and had healed completely on April 11, by which date the skin sensitivity had disappeared. As the school was in quarantine, the patient could not have been in contact with a case of zoster since the beginning of term.

COMMENT

In zoster patients there is usually a history of previous chicken-pox. In those over 40 years, in whom the malady is most often seen, the history of an earlier chicken-pox infection may not be remembered; but in children or adolescents suffering from zoster a history of previous chicken-pox is usually obtained (Schools Epidemics Committee, 1938). An earlier and greater rise of antibody had been found in the sera of zoster than in chicken-pox patients (Taylor-Robinson and Downie, 1959; Taylor-Robinson and Rundle, 1959); this is consistent with the view that zoster represents a second clinical infection with the virus. Little is known, however, about the pathogenesis of zoster. In the majority of zoster cases there is no known contact with chicken-pox or other zoster patients, and the seasonal prevalence of chicken-pox is not accompanied by an increased incidence of zoster (Seiler, 1949). These observations suggest that zoster is caused by the activation of latent chicken-pox virus. This view might help to explain the occurrence of zoster associated with disease or injury of the spine, x-ray therapy, or lumbar puncture. There is no evidence to indicate the tissue in which chicken-pox virus might lie latent nor, in most cases, the stimulus which leads to reactivation.

The occasional occurrence of cases such as that reported above indicates that chicken-pox virus may infect root ganglia at the time of the original chicken-pox infection, and suggests the possibility that in zoster cases the virus might remain latent in nerve tissue between the primary attack of chicken-pox and subsequent zoster. The occurrence of pain and hyperaesthesia involving the area of skin or mucous membranes, where the rash is to appear several days later, indicates that spread of virus occurs peripherally from the ganglia to the skin, probably by nerve pathways. This sequence of events is supported by histological evidence.

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D. TAYLOR-ROBINSON, M.D.,

Microbiological Research Establishment, Porton,
 Wilts; lately Department of Bacteriology,
 University of Liverpool.

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