FIG. 2.

audible at the bases and his temperature was 101° F. (38.3° C.). The dosage of aureomycin was increased to 0.5 g. four-hourly. He remained toxic, breathless, and exhausted on any exertion; the temperature rose to 103° F. (39.4° C.) and the pulse to 125. Hiccup was especially persistent at night, when sleep could be obtained only by the use of morphine. The rash progressed irregularly. No free bleeding occurred into the skin or from mucous surfaces, but there was widespread purpuric staining of the elements of the rash and more obvious haemorrhage at the base of and into some vesicles. Gradual improvement followed: the fever had subsided by August 17, when the aureomycin treatment was stopped. On August 21, when many of the crusts were separating and all anxiety regarding his recovery had disappeared, the patient returned, at his own wish, to his home environment. Styes and boils caused some trouble in convalescence.

Investigations.—On August 13 the vesicle fluid was negative to the complement fixation test for the vaccinia-variola group; egg culture was negative for vaccinia and variola. A throat swab showed no Vincent's organisms present in film. *Strep. viridans* and yeast were found on culture. The blood picture on August 13 was: Hb, 104%; red cells appear normal; platelets moderately diminished; white cells, 1,500 per c.mm. (polymorphs 57%, lymphocytes 39%, monocytes 2%, plasma cells 2%). On August 14: white cells 4,200 per c.mm. (polymorphs 54%, lymphocytes 43%, monocytes 3%). On August 16: white cells, 5,500 per c.mm. (polymorphs 61%, lymphocytes 33%, monocytes 5%, plasma cells 1%).

Discussion

An attack of varicella of the severity shown in this case must be extremely rare. During the past 23 years we have personally examined some 400 chicken-pox patients in whom, often because of the profusion of the rash or of the amount of constitutional disturbance, a diagnosis of smallpox has been considered. Yet among these severe cases we can recall only two, one of which proved fatal, which were comparable to the one here described. That the type of attack in this instance was not determined by an especially virulent strain of virus is suggested by the mildness of the disease in the three children who were known to be infected in the same series.

We have hesitated to apply the term "haemorrhagic" to this case as, following the teaching of Ricketts (1908) in respect of smallpox, we would reserve its use, in any acute infection, to describe the type of case in which initial toxæmia is extreme, and usually rapidly fatal, and in which considerable skin and mucous membrane bleeding may be prominent. In spite of the fact that the present patient's condition gave rise to some anxiety, we do not consider that his case falls into this category.

It has been suggested by M. Mitman (1951, personal communication) that in some instances haemorrhagic symptoms in chicken-pox may be determined by the occurrence of this

disease in a subject already afflicted with some disorder of the blood. In the above case a marked leucopenia at the first blood examination, combined with the severe faucial angina, pointed to an agranulocytosis, possibly determined by idiosyncrasy to sulphonamides. However, in spite of the low total white count, the polymorphonuclear cells never fell below 54%, and in the course of a few days the blood picture resumed a more normal appearance, in keeping with the general clinical improvement of the patient. Consequently we regarded the leucopenia as a symptom and not as a cause of the unexplained lack of resistance to the virus which determined the severity of the attack.

The enanthem formed a serious feature. The mouth and the fauces, for as far as they could be inspected, were profusely involved. The cause of the hiccup may well have come from lesions more remotely situated. But for antibiotic therapy the risk of pulmonary complications must have been considerable.

We wish to thank Dr. J. A. J. Hammond, who referred the case to our unit, for details of the patient's illness before his admission to hospital.

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A CASE OF ACCIDENTAL GENERALIZED VACCINIA

BY

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The following case of accidental generalized vaccinia demonstrates the source of infection and presents unusually extensive pathological lesions.

Case Report

A male child aged 6 months and weighing 16 lb. (7.3 kg.) was admitted on June 23, 1948, with exudative infantile eczema affecting the face, buttocks, and outer aspects of the thighs. Next day it was discovered that a female child who had been admitted 13 hours previously to a cot adjacent to the patient's had an active vaccination sore. This child was immediately isolated and made an uneventful recovery.

The patient responded satisfactorily to treatment, but 12 days later a number of papulo-vesicles appeared on the buttocks and thighs. The lesions, which rapidly became pustular, were discrete, umbilicated, roughly circular, of similar size, and at the same stage of evolution. With this exanthem the child became febrile and penicillin therapy was instituted. Two days later further crops of vesicles appeared on the face, trunk, and limbs, but no pulmonary lesion was detected clinically or on x-ray examination. By July 11 most of the pustular lesions had become small ulcers, several of which had coalesced, producing large ulcerated areas (Fig. 1) associated with inguinal and axillary adenitis. Sulphadiazine therapy was started. On July 14, for the first time, there was reluctance to feed and facial grimacing became a marked feature: signs of bronchopneumonia were now present. Death occurred on July 15.

Post-mortem Findings

The necropsy (four hours after death) showed lesions only in the skin (see above), lungs, and stomach.

FIG. 1.—Generalized vaccinia: eruption over sacrum, buttocks, and lateral side of thigh. Taken on July 13, 1948.

Lungs.—Small firm dark-purple nodules, a few with central vesiculation, were scattered on the surface of the right middle and both lower lobes. Similar nodules were present in the substance of these lobes, each consisting of a dark-purple consolidated area (approximately 0.5 cm. in diameter) with a grey or yellowish centre (0.1 cm. to 0.2 cm. in diameter). Altogether, 12 to 15 such nodules occurred in the three lobes.

Stomach.—The mucous membrane showed several dark-red areas of varying size, in which numbers of small ulcers were present.

Histology

Skin.—The appearances of the lesions were typical at all stages, and only certain features will be described, for comparison with those in the lungs. In the pustular stage, cellular infiltration was a prominent feature, both in the centre of the lesion and at the edges, where small vesicles were still present in the epidermis (Fig. 2): the cells were mononuclears, lymphocytes, macrophages, and endothelioid; polymorphs and eosinophils were scanty. Congestion and small haemorrhages were present. In the more advanced pustules small areas of necrosis were seen in the superficial part of the cutis vera. In the sections of all lesions, elementary bodies were very numerous. They were most clearly seen in the cytoplasm of the oedematous cells at the edges of vesicles (Fig. 3), where they occurred singly, in pairs, or in small groups mostly coccoid or rod-shaped, though varying somewhat in shape and size. Under serous crusts of vesicles,

FIG. 2.—Skin: edge of pustule. Multiple vesicle formation with subepidermal oedema and extensive cellular infiltration. (H. and E. $\times 120$.)

the bodies were very numerous and massed together; bacteria were also present. In the floors of pustules and ulcers, necrotic cellular debris made identification of the bodies uncertain, though it appeared that foci of large numbers were present. In contrast to the large number of elementary bodies, inclusion bodies of the Guarnieri type were scanty. None were seen in sections of vesicles. A few were present in epithelial cells at the edge of a pustule.

Lungs.—The nodular areas showed a histological structure similar to each other and comparable to the skin lesions. The nodules with clear grey centres showed discrete dense areas with an oedematous convexity towards the pleural surface similar to the late vesicular stage in the skin. Where the centre was dull yellow, necrosis was present, corresponding to the pustule. In both degrees of the lesion the surrounding lung tissue showed only slight oedema: the bronchioles both outside and just within the dense area showed no evidence of pyogenic or any other inflammatory changes. In the alveoli of the affected areas there was oedema with intense congestion of the capillaries in the walls; both the alveoli and the interstitial tissue showed extensive cellular infiltration similar to that found in the pustular skin lesions. In all the lesions numerous elementary bodies were present, in masses towards the pleural surface (Fig. 4) and scattered throughout the lesion, where the occurrence of a few Gram-positive diplococci emphasized the size of the elementary bodies. Guarnieri inclusion bodies were not seen.

Stomach.—The most obvious change was a punched-out ulcer of the mucous membrane, sometimes involving the muscularis mucosa and part of the submucosa. There was extensive oedema corresponding to vesicle formation in the submucosa with early necrosis of the collagen fibres. In one submucous "vesicle" small clumps of a few elementary bodies were attached to a necrotic collagen fibre.

Discussion

This child, suffering from infantile eczema, developed generalized vaccinia following contact with another child who had been vaccinated 10 days previously. Contact consisted merely in the occupation by the children of neighbouring cots for a period of 13 hours, mostly during the night: the first elements of the generalized vaccinia became evident 12 days later. Harries and Mitman's (1947) report that generalized vaccinia occurs especially among those who already have some skin condition was confirmed in a review of previous reports by Van Rooyen and Rhodes (1948, p. 391), and later by Fries *et al.* (1948), Anderson (1949), Whittle *et al.* (1950), and Somerville *et al.* (1951).

While similar cases are often reported as Kaposi's varicelliform eruption, this term has been applied to clinical conditions due to

FIG. 3.—Skin: early lesion. Elementary bodies in oedematous epithelium at edge of lesion. (Castaneda. $\times 600$.)

FIG. 4.—Lung lesion at pleural surface, showing large number of organisms massed together. (H. and E. $\times 120$.)

different viruses—for example, vaccinia (Anderson, 1949; Whittle *et al.*, 1950), herpes simplex (Jaquette *et al.*, 1946; Brain *et al.*, 1950), possibly influenza (Leverson and Whitlock, 1949)—or in which the virus is not definitely known (cf. Van Rooyen and Rhodes, 1948, p. 299). It would seem reasonable to apply the more specific term of “accidental generalized vaccinia” or “Kaposi’s varicelliform eruption (vaccinal type)” to cases in which the infection (a) is acquired by contact with a vaccinated person, (b) is definitely due to the vaccinia virus, and (c) causes a pox eruption on an eczematous soil (Fries and Borne, 1949).

The unusual lung lesions showed the same basic pathological features as those in the skin. Elementary bodies were present in large numbers. Viral lesions in bronchial walls have been described in mice inoculated intranasally (Nelson, 1938) and in generalized vaccinia in rabbits (Douglas *et al.*, 1929; McIntosh and Scarff, 1929), but not in man. In spontaneous rabbit pox, on the other hand, lung lesions exactly similar to those described here have been depicted by Nicolau and Kopciowska (1931). While the lesions in the stomach were only at the early “vesicle” stage, and no cellular infiltration had developed, it is assumed that they also were primarily due to the presence of the virus elementary bodies.

Large numbers of cytoplasmic and intercellular elementary bodies—Buist or Paschen type (Gordon, 1937)—occur in the skin lesions of vaccinia, but, so far as can be ascertained, lung and stomach lesions containing these bodies have not been previously reported in man. The large eosinophilic inclusion bodies of Guarnieri are specific; in this case they were seen only in the skin lesions, and not in those occurring in the lungs or stomach.

Summary

A fatal case of accidental generalized vaccinia is described; the clinical history lays fresh emphasis on the ease with which an eczematous infant may develop generalized vaccinia. In addition to the skin eruption, lesions of a similar nature were present in the lungs and stomach.

We are indebted to Drs. A. D. McLachlan, and A. Girdwood Fergusson, Department of Dermatology, Stobhill Hospital, for their advice in the presentation of this paper.

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People sometimes do too much to help the blind, and increase their feeling of helplessness. Unwittingly they leave too little of the initiative with the blind person, says the *Annual Report of the Guide Dogs for the Blind Association*. But the guide dogs treat their masters as normal in everything except that they cannot see. They guide their masters, but do not think for them. Dogs enable many people to do jobs that would otherwise be extremely difficult for them—those involving travelling, for instance. For hundreds of years people have used dogs to guide them, but not until 1915 was any organized training begun. This was in Germany, and the British association was founded in 1933. In addition to the centre at Leamington, a new one has been set up at Exeter.

Medical Memoranda

A Case of Mumps with Involvement of the Lacrimal Glands

Involvement of the lacrimal glands in mumps must be very rare, although reference to it can be found in some standard works: “The lacrimal gland is rarely attacked” (Price, 1950) and “Vaugiraud and Defaux have reported a case of bilateral dacryoadenitis manifested by swelling and tenderness of the lacrimal glands, which developed three days after the parotitis and subsided at the same time as the inflammation of the parotid” (Rolleston and Ronaldson, 1940). Nevertheless it was with great surprise that we encountered the following case in which an undoubted bilateral dacryoadenitis coexisted with, and clearly formed an integral part of, an otherwise typical mumps syndrome.

CASE REPORT

On March 18, 1951, a woman aged 29 complained of general aches, malaise, and pains in the left side of the neck. Next day the aches had disappeared and she was able to do her housework in the morning. The pain in her neck persisted, however; in addition her left upper eyelid began to swell and she became conscious of two swellings, which she could feel with the tip of her tongue, in the position of the sublingual glands. By the same evening she had developed a frontal headache, which she described as very severe and “more than just a headache.” At this stage her neck felt “stiff” and her left upper eyelid began to swell. On March 20 the frontal headache remained severe, both upper eyelids were very swollen (but without erythema), and the neck was painful on both sides and diffusely “stiff.” The patient remained conscious of the swellings under her tongue. At this time the oedematous upper eyelids were the outstanding sign and the possibility of nephritis was considered.

On March 21 the eyes were almost closed by oedema and a notable erythema involved the lids of both eyes, ceasing abruptly at the eyebrows and spreading downwards on to the cheeks, where it faded away without line of demarcation. The erythema did not straddle the nose or involve the forehead or neck, and it was not indurated or tender. The headache had by now disappeared. The pain in the neck remained, and there was also pain in both ears and underneath the right upper eyelid. On this day the patient was admitted to hospital as a presumptive case of facial erysipelas. Besides the facial appearances, tender smooth enlargements of moderate degree were found discretely affecting the parotid and submaxillary glands of both sides; there was also a moderate degree of trismus, and the tongue could not be protruded more than just to show the tip—owing, it appeared, partly to the mechanical effect of the sublingual swellings and partly to their tenderness. The dorsum of the tongue was dry and brownish and there was pronounced halitosis. The temperature on admission was 100.4° F. (38° C.) and the urine was not found to contain albumin or sugar. On March 22 the patient began to feel better, the temperature fell in the evening (subsequently remaining normal) and the oedema of the eyelids began to decrease.

On March 23 a blood count gave haemoglobin 90%; colour index, 1; red cells, 4,500,000; white cells, 9,500 (polymorphs 75%, lymphocytes 20%, large monocytes 4%, eosinophils 1%). On this day the upper eyelids could easily be lifted and a swelling could be discerned under the outer part of each; pressure on this swelling through the lid definitely caused pain—at least on the right side—and the examining finger left a pit in the subsiding oedema. Underneath each upper lid was a small amount of sticky yellowish exudate. The patient was seen by an ophthalmologist, Mrs. Dorothy Campbell, on March 23, who noted: “Acute