profitable to think of the damaged bronchus as a lodging-place where the tyroglyphus mite may grow by ingestion of secretions and products of inflammation in the bronchus, because the mite develops in a disintegration product of organic matter. The possible route of infection through the alimentary tract cannot be entirely dismissed if the mite is located in a nodule that does not communicate with the bronchus. Such a finding was not observed.

The lesions in the alveolar and peribronchial areas were composed of histiocytic or lymphocytic infiltration without leucocytes being seen, indicating the presence of subacute inflammation. Large quantities of black-brown pigment granules were present either free or taken up in the histiocytes. It was supposed by Landois and Hoepke (1914) that the pigment granules were produced by the mite. Broncho-pneumonia accompanied by pulmonary acariasis is considered to be a reaction to these substances. Natural cure may occur by expectoration of the mite, whereas when the bronchus becomes damaged and loses its ciliated epithelium, as in our case, the mite remains in the bronchus for a long time, to delay the course of the disease.

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Reaction to "Varidase"

Streptokinase is used as a fibrinolytic agent in a variety of conditions (Symposium on Fibrinolysis, 1960; *British Medical Journal*, 1962). Pyrexial reactions to streptokinase and streptodornase have been reported frequently (Ambrus *et al.*, 1960). These preparations were early shown to be antigenic (Christensen, 1949), but reactions were then thought to be rare. Anaphylactoid reactions have since been reported (Blix, 1961). Below is recorded a Henoch-Schönlein type of reaction to "varidase," a mixture of streptokinase and streptodornase.

CASE REPORT

In March, 1961, a 47-year-old soldier developed a right renal abscess. There was no previous history of renal or allergic disease. No renal tissue was found at exploration, and a biopsy of the abscess wall showed non-specific granulation. Since this time there has been a discharging sinus from the area. Repeated cultures have grown a coagulase-positive staphylococcus; neither tubercle bacilli nor actinomyces have been recovered. Antibiotics, local toilet, and re-exploration in December, 1961, failed to heal the sinus.

Varidase therapy has been reported to be useful in the management of chronic abscesses. On January 26, 1962, daily instillations into the sinus were begun with topical varidase (one ampoule in normal saline). On March 5 the patient reported the development over the previous two days of a rash and vague joint pains. The rash was a generalized purpura. Pain and stiffness affected first the ankles and later the knees, wrists, and fingers. One or two joints would be affected for 24 to 48 hours and then gradually settle, only to flare up again some days later. On March 9 instillations were stopped but there was little change in his condition. Two further instillations were given on March 22 and 23. Four days later an exacerbation occurred and he was admitted to Auckland Hospital.

On examination the lower trunk, legs, and forearms were covered with purpuric spots up to 2 mm. in diameter. The face and mucous membranes were unaffected. Temperature was 100° F. (37.8° C.). Fluctuating joint pains continued during his stay in hospital. The affected joints were

tender, warm, and sometimes swollen, and movement was extremely painful.

No streptococci were found in the throat or urine or in swabs from the sinus. Bleeding-time, clotting-time, platelet count, Owren's prothrombin clotting-time, prothrombin consumption index, clot retraction, and capillary fragility tests were normal. Bone-marrow examination showed a moderate increase in lymphocytes, eosinophils, and plasma cells.

Antistreptolysin-O titres at 5, 15, and 51 days from the exacerbation were 1 in 12, 1 in 625, and 1 in 500. Precipitin tests were performed three weeks after the first episode and two days after the exacerbation. One ampoule of topical varidase was dissolved in 15 ml. of sterile water. This was titrated against the patient's serum diluted with normal saline. Prompt precipitation occurred at 56° C. maximal on both occasions with a dilution of 1 in 50 of antigen solution and 1 in 20 of serum. No precipitation occurred with two controls.

Repeated mid-stream urine specimens contained 20 to 50 red cells and 20 to 30 leucocytes per high-power field, with a trace of protein but no organisms. Blood urea was raised to a maximum of 120 mg./100 ml.

The condition settled spontaneously after four weeks, although the abnormal urine findings persisted. Two weeks later an intradermal test with varidase produced a violent response. A local weal developed within minutes, spreading to an area of 10 by 5 cm. At 24 hours the whole forearm was red, swollen, and painful. This settled without treatment over three days.

DISCUSSION

Topical varidase is a partly purified preparation which contains in each ampoule 100,000 Christensen units of streptokinase and 25,000 units of streptodornase, together with smaller amounts of hyaluronidase, ribonuclease, and enzyme inhibitors. The occurrence of allergic reactions is not surprising. Better-purified fibrinolytic agents produce fewer reactions. After therapy there is a variability in antibody levels which may be related to previous streptococcal infections. Antibodies which can persist for many months may render further therapy useless and occasionally dangerous (Blix, 1961). Specific antigen-antibody precipitin reactions have not been reported.

In the present case treatment with varidase was continued for longer than the usual period. An allergic reaction developed after six weeks' therapy with an exacerbation following readministration two weeks later. The results of precipitin tests and a subsequent intradermal test suggest that varidase was the cause of the allergic reaction. Although the antigen is unknown, the rise in antistreptolysin-O titre suggests that it was one of the enzymes. It is possible that the reaction could have affected the kidneys, but other features make it more likely that the abnormal urine findings and raised blood urea were the result of chronic pyelonephritis.

There is no previous record in the literature of a Henoch-Schönlein reaction to varidase.

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