B.C.G. VACCINE AND PHLYCTENULAR KERATO-CONJUNCTIVITIS*

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THOUGH the aetiology of phlyctenular conjunctivitis is doubtful, evidence has been accumulating that the phlyctenule (a solid pustule) is an allergic anaphylactic phenomenon. The sensitizing agent is a protein and is endogenous and of bacterial origin. Various proteins, such as the gonococcal protein may give rise to phlyctenules, but the tuberculo-protein is the most frequent and obvious (Duke-Elder, 1938).

Guillery (1921) found that phlyctenules could be produced by sensitizing non-tuberculous rabbits and then injecting tuberculin. A similar phenomenon has been appearing lately in these Islands following upon mass vaccination in the early months of 1950 of young people between the age of 2 and 18.

The B.C.G. vaccine is produced from a bovine type of tubercle bacillus, after it has been cultured for 13 years in a special medium. Though the bacillus loses its power to produce tuberculous disease, it retains the power of the tubercle bacillus to develop a relative immunity against tuberculous disease.

Only persons showing no reaction to a tuberculin test, that is non-reactors to tuberculin, were B.C.G. vaccinated. In the Malta campaign the Adrenaline-Pirquet test was used. This consists of standardized tuberculin (1.7 times international standard), to which adrenaline has been added. The non-reactors have either too few antibodies to afford any protection against tubercle bacilli, or no antibodies at all because they have never been infected or because the infection occurred a long time ago. These non-reactors are converted to reactors by means of the B.C.G. vaccine. A reading of the test is made on the 3rd day, when positive reactions show an area of infiltration of at least 4 mm. (Weidemann, 1950). Several methods of administering the vaccine have been employed, and the standard intradermal method has been found to be the best. After an intradermal injection of the B.C.G. vaccine, what one might call a normal "B.C.G.-itis" occurs. There is multiplication of the bacilli at the site of the injection, early propagation of the bacilli to the

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regional lymph glands and dissemination of the B.C.G. by way of the blood to the entire organism. Very small foci are created in different organs and finally allergy develops (Ustvedt, 1949).

CLINICAL OBSERVATIONS

In June, 1950, a private patient consulted me about her 6-year-old daughter, who was complaining of irritation and watering of the right eye. On examination, there was a phlyctenule at the limbus, surrounded by the usual injection of the blood vessels of the bulbar conjunctiva. A remark by the mother that her daughter had been B.C.G. vaccinated 2 weeks before, suggested to me a possible relation between the vaccine and the appearance of the phlyctenule.

I subsequently saw ten cases of phlyctenular kerato-conjunctivitis, all of them B.C.G. vaccinated and still showing a small pustule on the arm or on the back. The time between B.C.G. vaccination and the appearance of the phlyctenular kerato-conjunctivitis varied from 2 to 6 weeks. The ages of the children were between 4 and 8 years. Chest x rays were taken in all these cases. No pathological changes were found, but two cases showed engorgement of the hilar glands. The usual site of the phlyctenule was at the limbus. One case showed a phlyctenule on the cornea just within the limbus, and another a phlyctenule on the ocular conjunctiva. The number of phlyctenules was usually one. The marked subjective symptoms were the main reason why these children were brought for examination. All cases responded very well to treatment by gutt. sulphacetamide 30 per cent. instilled 3-hourly and ung. H.O.F. twice a day. In only one case was there a recurrence of the phlyctenular conjunctivitis.

DISCUSSION

Lately, the incidence of kerato-conjunctivitis phlyctenularis in these Islands has been very low and all the recent cases I have seen were in children who had not had B.C.G. vaccination. Pålsson (1943) reports the occurrence of phlyctenules at the time of conversion in some individuals vaccinated by the B.C.G. vaccine, and a case of kerato-conjunctivitis six weeks after B.C.G. vaccination was reported from Poland (Ustvedt, 1949).

Another clinical phenomenon accompanying the injection of the B.C.G. vaccine and the conversion of a subject from non-reactor to a reactor is the appearance of "erythema nodosum". Almost all the cases concerned showed both a constitutional and familial disposition to the erythema, but perhaps the relatively weak allergy produced by the vaccine might have been sufficient to elicit the erythema (Imerslund, 1943). In the same way, though the possibility of the phlyctenules as a pure B.C.G. effect cannot be ruled out, a constitutional and familial disposition might have something to do with the appearance of phlyctenular conjunctivitis.

CONCLUSIONS

The relation between the B.C.G. vaccine and the appearance of the phlyctenules affords one more proof that the kerato-conjunctivitis

phlyctenularis is of an allergic origin and that the sensitizing agent is a tuberculo-protein. If we are to judge from the present low incidence of phlyctenular conjunctivitis, the relative immunity built up by the B.C.G. vaccine is working well and proving to be of value.

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