PHLYCETENULAR CONJUNCTIVITIS IN AFRICAN CHILDREN

BY

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Phlyctenular conjunctivitis is a focal inflammatory disease of the conjunctiva characterized by a rounded translucent nodule surrounded by a zone of hyperaemia. The nodule may be single or multiple and is situated on the conjunctiva, close to the corneal limbus. Histologically it is an aggregation of large numbers of lymphocytes and occasional polymorphonuclear cells. Secondary infection, photophobia, blepharospasm and lacrimation are features of this condition.

Phlyctenular conjunctivitis is relatively rare among Europeans, but is still common in non-European communities. In 1947 an American Medical Association investigation committee (Barnett, Fields, Milles, Silverstein and Bernstein, 1947) reported that 20% to 50% of children in Alaskan native villages had corneal scars, due to healed phlyctenulosis. Thygeson (1951) noticed a very high incidence of this condition among Apache Indians of Arizona during the years 1934 to 1938 and among the Negro and Puerto Rican children of New York City before World War II.

At Baragwanath Hospital where we deal with an African urban community living under poor hygienic circumstances we see active phlyctenulosis among the children quite commonly. At the Children's Outpatient Department which is attended by children up to 9 years of age, and where the total yearly attendance of new cases is 40,000, 36 active cases of this condition were seen in a 12-month period. We were particularly interested in elucidating the relationship of these cases to tuberculosis which is rife in the community.

The Present Study

This study was done retrospectively and is based on the records of all cases of active phlyctenular conjunctivitis seen at the Children's Outpatient Department in the 12 months from November, 1955, to October, 1956. There were 36 in all.

The age range among our 36 cases was 1 to 9 years, the majority of them being 4 to 8 years old. A slight preponderance of females, 19, to males, 17, was noted, and there appeared to be no month or season in which the cases presented predominantly. The standard of nutrition was average for urban African children in Johannesburg, except for one child who was so malnourished that he was specifically admitted for this.

All of the 36 cases had radiographs of the chest taken. Unfortunately, due to a fear of the excessively strong allergic reactions to tuberculin which have occurred from time to time in this condition, only 17 of the 36 were tested for tuberculin sensitivity, using the tuberculin jelly patch test. Of these 17 cases 15 showed positive reactions, three of which were severe with blistering and tissue necrosis, and two were negative. The radiological survey showed 22 cases with definite evidence of active or healed tuberculosis and of these, five cases had calcified tuberculous lesions (Fig. 1a and b). Fourteen cases had completely normal chest radiographs. One case had associated erythema nodosum and another case had a tuberculide rash.

Discussion

Price (1948) states that the majority of cases of phlyctenular conjunctivitis occur within the first 5 years of life. In Sorsby's (1942) series the age of maximum liability was from 4 to 10 years. Thygeson's cases occurred most commonly between the ages of 8 to 15 years. Our cases occurred predominantly between 4 and 8 years.

Both Sorsby and Thygeson state that the condition is more common in females. In our cases there was only a slight predominance of females over males. Sorsby noted that this condition presented more commonly in Spring; in our cases there appeared to be no seasonal variation.

Malnutrition, focal sepsis, pediculosis and worm infestation have all been incriminated as aetiological agents from time to time. The findings in this
series do not support these views. Thygeson states
that phlyctenulosis is most frequent in children
from the lower economic strata of society whose
diet is most likely to be deficient. Our cases all
occurred in a predominantly malnourished society,
but only one was severely malnourished, the
nutrition of the others varying within the average
range.

Most writers stress the aetiological importance of
tuberculosis, although there is considerable dis-
agreement about the specific phase of tuberculosis
with which it is associated.

Sheldon (1955) states that phlyctenular con-
junctivitis and erythema nodosum are benign
allergic manifestations of primary tubercle occurring
at the time of Mantoux conversion and that their
presence indicates early tuberculosis. Holt and
McIntosh (1940) state that phlyctenular conjunc-

tivitis may occur at the height of the initial
tuberculous infection but that it is more common
later and shows a tendency to recurrence and
chronicity; they also state that it is invariably a
manifestation of tuberculosis and is accompanied
by a high degree of allergy. Lightwood and Court
(1953) claim that, although there is clearly a relation-

ship between tuberculosis and phlyctenular conjunc-
tivitis, the oft-repeated statement that phlyc-
tenulosis is strictly analogous to erythema nodosum
is not true and its onset bears no fixed relationship
to the emergence of primary tuberculous allergy;
they feel that it is best considered as a response
to sensitization by several allergens of which in
Great Britain tuberculosis is the most important.

Ellis (1956) states that as in the case of erythema
nodosum, phlyctenular conjunctivitis is regarded as
an allergic manifestation for which tuberculous
infection elsewhere in the body is responsible in
more than 75% of cases. Whilst non-tuberculous
cases may occur and while there appears to be some
relationship with malnutrition, it should always be
assumed that tuberculosis is an aetiological factor
until investigation has proved otherwise.

When Fritz and Thygeson (1951) investigated
phlyctenular conjunctivitis in Alaskan Indians and
Eskimos they found that all cases of active phlyc-
tenulosis had positive tuberculin reactions, while
radiographic evidence of active or inactive pul-
monary tuberculosis in a comparative study of two

Alaskan villages showed a parallel between the
prevalence of tuberculosis and phlyctenular conjunc-
tivitis.

Sorsby (1942) writing on phlyctenular conjunctiv-
itis in children and adolescents in England, found
that in 592 cases 84.8% were tuberculin positive, as
against 15.3% in 900 control cases, and that of
510 cases examined radiologically 72.2% showed
evidence of pulmonary tubercle as against 16.1%
positive radiographs in 87 controls. The same
author investigating the family history of tubercu-
losis found an incidence of 28.9% in 263 school
children with phlyctenular conjunctivitis as opposed
to an incidence in the normal school population of
3.7%. The expectation of subsequent overt tubercu-
losis was statistically higher in the phlyctenular
conjunctivitis group.

Damato (1951) reports the cases of 11 children in

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**FIG. 1 (a) and (b).**—Chest radiographs showing calcified primary focus in lungs of patient with phlyctenular conjunctivitis.
Malta who developed phlyctenular conjunctivitis two to six weeks after BCG vaccination and he concludes that this is evidence that phlyctenular conjunctivitis is due to sensitization with tuberculin protein. He also attributes the lowered general incidence of phlyctenulosis in Malta in recent years to the lowered incidence of tuberculosis brought about by BCG inoculation.

Fritz and Thygeson (1951) consider that phlyctenular conjunctivitis in well-developed tuberculosis may be due either to activation of an already existing focus of tuberculosis which liberates antigenic products into the blood stream or to non-specific vasodilatation caused by secondary bacterial infections of the eye bringing circulating tuberculous antigens to the conjunctivae. They have repeatedly observed the effect of epidemic Koch-Weeks bacillus and pneumococcal conjunctivitis in exciting acute attacks of phlyctenular conjunctivitis in susceptible children.

Our series of cases appears to confirm the view that phlyctenular conjunctivitis is commonly associated with tuberculosis. An interesting finding was that of associated long-standing tuberculous infection as evidenced by calcified lung lesions in five patients. As far as we could determine all the patients were suffering from phlyctenular conjunctivitis for the first time since there was no evidence of old scarring. This suggests that although there is a link between phlyctenular conjunctivitis and tuberculosis, the condition is not necessarily associated with the early hyper-allergic phase of tuberculosis occurring at the time of Mantoux conversion, i.e. approximately six weeks after the initial infection. We feel that this supports the view that phlyctenulosis is not analogous to erythema nodosum and that its appearance bears no fixed relationship to the onset of primary tuberculous allergy.

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References


Phlyctenular Conjunctivitis in African Children

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Arch Dis Child 1958 33: 292-294
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