

# ALLERGENIC PROPERTIES OF SWEAT IN MILIARIA: A NEGATIVE REPORT

L. J. A. LOEWENTHAL, M.D., M.R.C.P., D.T.M. & H. AND S. C. HINS, M.B., CH.B., *Chamber of Mines Hospital and South African Institute for Medical Research, Johannesburg*

In a previous publication<sup>1</sup> it was shown that the earliest histopathological changes in miliaria (prickly heat) resembled those of eczema located around the sweat ducts. These changes precede the obstructive ones which are regarded as the classical features of miliaria; in order to find out whether sweat was acting as an allergen and thus causing miliaria, the following experiments were made. The problem is similar to that of the urticariogenic properties of sweat investigated by other authors,<sup>2</sup> but in this enquiry the delayed, eczematous reaction had to be considered in addition to the immediate, urticarial response.

## MATERIAL AND METHODS

Three groups of adult subjects were used in the experiments; they were made up as follows:

1. Eleven miliaria patients of whom 5 presented evidence of the disease at the time of testing.
2. Eight with other skin conditions (5 cement dermatitis, 2 bacterial eczema and 1 primary irritant dermatitis).
3. Two with no skin disease.

Forced sweating was induced in a hot box and when free perspiration was present, usually after half an hour, the back was washed with distilled water, dried and then watched for the reappearance of sweat; this was then collected in test tubes and used for subsequent experiments.

### *Urticariogenic Properties*

Using tuberculin syringes, intradermal injections of 0.1 ml. were made in a total of 9 patients (4 from group 1 and 5 from group 2). The test material consisted of:

1. Unsterilized sweat, from self and other patients.
2. Pasteurized sweat, from self and other patients.
3. Sweat including 0.0001% of merthiolate solution.
4. Normal saline control.

In none of these experiments was an urticarial wheal produced.

### *Eczematogenic Properties*

Patch tests were carried out on 17 of the above 3 groups of miners. Sweat was collected in the same manner, labelled and kept refrigerated.

The following patch tests were applied to the previously cleaned back or arm:

1. Potassium bichromate 0.1%.
2. Potassium bichromate 0.5%.
3. Normal saline control.
4. Subject's own sweat untreated.
5. Subject's own sweat pasteurized.
6. Subject's own sweat + merthiolate, 0.0001%.
7. One other subject's sweat untreated.
8. One other subject's sweat pasteurized.
9. One other subject's sweat + merthiolate, 0.0001%.

A small square of gauze was dipped in the test solution, applied to the skin and was covered with a 1 sq. in. piece of cellophane and secured with Elastoplast. The patches were removed after 48 hours and read 20 minutes later.

Only 1 sample of sweat gave a strong reaction. The same sweat however, when pasteurized, gave a negative reaction. This sample came from a patient with severe bacterial eczema; his untreated sweat also gave a +++ patch test reaction in another subject though it gave a negative result when pasteurized. It was therefore concluded that this reaction was due to bacteria or their products and not sweat *per se*. The saline control tests were also negative but 8 out of 16 cases gave a positive reaction with bichromate patch tests; 5 of these were from group 1, the rest from group 2.

## CONCLUSION

None of the 11 miliaria patients showed either an urticarial or eczematous reaction to his own sweat or that of another subject, whether the latter suffered from miliaria or not. The sweat of miliaria subjects produced no reaction in control subjects either by patch test application or by intradermal injection.

## SUMMARY

Intradermal and patch testing in miliaria (prickly heat) subjects and controls showed no evidence of allergenic properties in the sweat.

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## REFERENCES

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2. Sulzberger, M. B. and Herrmann, F. (1954): *The Clinical Significance of Disturbances in the Delivery of Sweat*, p. 114. Springfield, Ill.: Charles C. Thomas.