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LUCERNE AS A CAUSE OF RESPIRATORY ALLERGY IN SOUTH AFRICA

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An account¹ has already been given of the occurrence in South Africa of allergic vasomotor rhinitis and bronchial asthma caused by the inhalation of the dust of cereal grains. In farming practice, however, lucerne is frequently grown and is also generally handled together with cereals on the lands and in cattle feeding. As lucerne (*Medicago sativa*) is a legume and not a true cereal of the grass (*Graminae*) type like maize, wheat, oats and rye, its role as an allergen in respiratory allergy is dealt with separately in this paper.

Lucerne, a perennial legume, is one of the principal crops in the Union of South Africa and is grown almost exclusively for hay in cattle feeding. It is a good source of protein and mineral matter and is used as a feed for all classes of livestock, for which purpose the hay is often ground to meal. It is produced principally on the irrigated settlements situated on the lower Orange River, from about Buchberg Dam to beyond Kakamas, and from those of the Vaalharts, Oudtshoorn and Graaff-Reinet areas and also on the Fish, Sundays, Modder, Sak and other rivers.²

Lucerne usually causes vasomotor rhinitis and bronchial asthma especially when it is handled in the dry state during baling of the hay or when milled into powder. In the farming districts of the Orange Free State, where lucerne respiratory allergy is not uncommon, it has been observed that children, mainly boys 5-10 years of age, develop mild urticaria after helping in the lucerne lands.

In the 7-year period to 1957, 57 extracts were issued as 'treatment sets' at the request of physicians for the desensitization of patients clinically sensitive to lucerne. Of these, 36 sets (63.1%) were made of lucerne extract alone and 21 sets (36.9%) contained in addition extracts of one or more cereal to which the patients were also sensitive.

In 1952 the realization that allergic sensitivity to the inhalation of lucerne dust was of significance in South Africa stimulated a close study of each case that subsequently came to notice. Information about the patients was obtained largely by correspondence with the physicians concerned. In this way from 1952 to 1957 reports were received of 38 patients with a clinical sensitivity to the inhalation of lucerne dust (confirmed by skin testing in 18 cases where this was done). In 23 patients the sensitivity was to lucerne alone and in the other 15 there was a co-existing sensitivity to one or more cereal.

Among 24 lucerne-sensitive patients whose occupation could be ascertained there were 16 farmers, 3 agricultural students working on farms, 3 workers in grain stores or mills and 2 school children.

Lucerne extracts were issued to physicians for desensitizing purposes in 30 treatment sets, either alone (19), together with a single cereal extract (6), or together with two or more cereal extracts (5).

CASE REPORTS

It was possible, from information received, to study the clinical and other details of 24 patients in whom lucerne sensitivity was a specific factor in their respiratory allergy condition. In only 6 of these, however, where desensitization with lucerne extract was actually carried out, were sufficient details of the treatment obtained for an assessment of the value of such desensitization. These cases are described hereunder, the physicians' comments being shown in italics.

Case 1

A 13-year-old schoolgirl suffered from vasomotor rhinitis and asthma from the age of 3. Her father is subject to hay fever. Her symptoms occurred only when her father—a lucerne farmer—returned home from work. When the family moved from the farm there was no further asthma until an attack occurred, when the cause was traced to lucerne being used by neighbours for feeding goats. Skin sensitivity was shown to compositae, grass pollen, house dust and lucerne. She was sensitized with the combined extracts of these substances. *'The patient can sleep with a bale of lucerne now, if she wanted to, through the night—without any adverse effect.'*

Case 2

A 16-year-old boy at an agricultural school suffered from vasomotor rhinitis with occasional attacks of asthma. His father's brother is an asthma sufferer. The symptoms were present for 3½ years and occurred only when in contact with lucerne, especially dry lucerne. Before then contact with lucerne produced watering of the eyes and some rash. Sensitivity to lucerne was confirmed by skin tests. Desensitization was carried out with lucerne extracts and the doctor reported: *'When I was about two-thirds through the course of the injections, the patient was entirely free from both hay fever and asthma despite close contact with wet and dry lucerne.'*

Case 3

A 39-year-old man managing a farm store suffered from vasomotor rhinitis. His two sons suffer from hay fever. Symptoms occurred during his daily handling of green and dry lucerne. Skin tests were not done. Desensitization was carried out with lucerne extracts. *'The patient did not complete the course of the*

injections since he was transferred to another district. He had nevertheless become completely free of symptoms.'

Case 4

A school girl aged 14 suffered from vasomotor rhinitis and asthma. She lives about half a mile from a lucerne mill and developed severe symptoms whenever the wind blew in her direction. Skin tests confirmed lucerne sensitivity. Desensitization was carried out with lucerne extracts. 'After 10-12 injections the patient was completely desensitized. Previously she would not have dared to go anywhere near the lands. Now she can play about in a field of lucerne without any effect.'

Case 5

A 18-year-old farmer suffered from vasomotor rhinitis. Symptoms occurred when he worked with lucerne. Confirmatory skin testing was not done. 'Successful desensitization occurred after 10-12 injections of lucerne extracts.'

Case 6

A farmer aged 29 suffered from attacks of vasomotor rhinitis and asthma when he fed sheep with lucerne. Sensitivity to lucerne was confirmed by skin tests. Desensitization was carried out with lucerne extracts. 'Patient has benefited much from the injections. Although he tries to avoid contact with lucerne as much as possible, he definitely does not get the same attacks he used to get on coming into contact with lucerne.'

A study of the above cases shows that desensitization with lucerne extract is a highly satisfactory procedure.

Very occasionally cases occur of respiratory allergy due to the inhalation of another legume—peas (*Pisum sativum*). The pea plants which grow on farms are uprooted when the peas are mature and submitted to a crushing and sifting process, during which time respiratory symptoms have been produced by the dust.

Buckwheat (*Fagopyrum vulgare*) is neither a cereal nor a legume, but belongs to the family *Polygonaceae*, of which rhubarb is also a member. Buckwheat was introduced into South Africa for a period as a flour substitute in the local baking industry when wheat was in short supply and Ordman³ showed that vasomotor rhinitis and bronchial asthma resulted from the inhalation of buckwheat flour in sensitive persons.

SUMMARY AND CONCLUSIONS

An investigation is reported of the occurrence of allergic vasomotor rhinitis and bronchial asthma resulting from the inhalation of lucerne dust in the Union of South Africa.

Lucerne-dust sensitivity was found mainly in farmers, but it occurred also in persons otherwise handling green or dry lucerne in stores and mills.

Details are given of 6 cases of lucerne-sensitive patients with symptoms of respiratory allergy where desensitization with lucerne extract was carried out and where the results of desensitization could be assessed.

Specific lucerne desensitization in respiratory allergy due to the inhalation of lucerne dust is shown to be very satisfactory.

REFERENCES

1. Ordman, D. (1958): S. Afr. Med. J., 32, 784.
2. Union Department of Interior (1955): *Official Year Book of the Union of South Africa*, No. 28. Pretoria: Government Printer.
3. Ordman, D. (1947): S. Afr. Med. J., 21, 737.