high. Welford[2] states that 24 cases of tracheobronchial diphtheria were admitted over a period of 18 months to the Municipal Contagious Disease Hospital, Chicago. During this time 11% of all deaths due to diphtheria were of the tracheobronchial type. A common finding in these children at autopsy was hæmorrhage in the suprarenal glands. This lesion was absent in the present case.

Acknowledgment and thanks are extended to Dr. H. T. Norry for the photography.

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MUCOSAL RESPIRATORY SYNDROME*

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Stanyon and Warner[1] reported 17 cases of mucosal respiratory syndrome found in Canadian Army Hospitals. The syndrome is one of striking and varied lesions of all mucous membrane and skin surfaces, pneumonia, prostration and high fever. It has impressed all who have seen it by its discomfort, duration and danger. These authors have stressed that "The chest findings were an integral part of the syndrome". They stated also: "Drug reactions particularly to the sulfonamides have been incriminated by several writers as the cause of this syndrome. Many of these cases received some form of sulfonamide usually sulfathiazole, particularly in the early stages, but on the other hand over half of the cases received no medication whatever until the disease was well established. This syndrome had been described long before the advent of sulfa drugs. No common drug could be involved in our series."

In a brief survey of the literature six[2, 3, 4, 5, 6, 9] other interesting descriptions of the same or a very similar clinical syndrome of pneumonia with extensive mucous membrane and skin lesions or reactions were in many cases[4, 5, 6] laid at the door of sulfonamide sensitivity. It must be pointed out that the similarity of the cases noted by White,[4] Greenberg and Messer[5] and Johnson[6] to those of Stanyon and Warner[1] and Schoemperlen[9] both as to symptomatology and course is too great for coincidence. The syndrome of conjunctivitis, stomatitis, the involvement of the other mucous membranes and the cutaneous eruptions associated with a pneumonia is practically the same in all cases. Stanyon and Warner's comment regarding the lack of association with sulfonamides in their cases has been already noted.

In justice one must note Kasselberg's[7] case of an extremely similar mucocutaneous reaction, without apparent pneumonia, following the giving of 4 gm. of sulfamerazine superimposed on the use of sulfathiazole three weeks before. It is of interest that his twenty year old patient had had "pneumonia" at 6, 7 and 8 years of age. No note was made of chest findings or chest x-ray during the illness described. Raffeto and Nichols[8] reported a similar condition in a child following the use of sulfadiazine; again no pulmonary disease was found.

In all cases described, the bacteriology of the blood, eye lesions, mouth lesions, skin lesions and sputum was unremarkable. Where pneumonia was found the etiology was undetermined. Treatment has always been good nursing care and supportive measures. Schoemperlen[9] in his presentation of a clear-cut case suggested the likelihood of an allergy of hypersensitivity being the cause of the widespread lesions. With this in mind he used benadryl with rapid relief of symptoms and prompt recovery.

A case diagnosed as having the mucosal-respiratory syndrome is presented herewith.

C.C.B., aged 18, was admitted to a small country hospital on December 1, 1943 because of head cold, malaise and fever of several days' duration followed by the onset of cough on the day of admission. Admission examination showed a temperature of 99° F., pulse 90, and respirations of 15. The mucous membrane of the nose and throat was congested and inflamed, the skin was flushed but no rash was noted. The lungs were clear of râles but the breath sounds were roughened. He had been on sulfathiazole 1 gm. every four hours for five days. There was no previous history of the taking of any sulfonamide. He was transferred on December 7, 1943, to a larger hospital, because the temperature was rising, reaching 103.4° F. He became unco-operative, lethargic, evidence of congestion was found in the right base and many sores broke out in the mouth.

On admission the temperature was 102.4° F., pulse 100 and respirations 24. Significant physical findings: patient looks tired and ill, face flushed. Nasal passages partly blocked by muco-purulent exudate; right nostril is tender. Tongue heavily coated, tonsils out, posterior pharynx crimson, no punctate hæmorrhages, gums swollen, tender. Herpes blister on the lower lip. Glands: normal. Neck not stiff. Chest: shows only slightly

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diminished breath sounds at right; no râles. Blood pressure: 124/60; heart not enlarged, no murmurs. Abdomen: flat, no tenderness, no organs or masses palpable. Central nervous system: lethargic, apathetic, but answers questions well. Reflexes: normal.

December 7.—Smears from gums positive for Vincent's organisms. Hgb. 91%, red blood cells 4,730,000, white blood cells 7,050. Neutrophiles 78%, lymphocytes 12%, eosinophiles 3%, monocytes 7%.

December 8.—Condition unchanged. X-ray showed a patchy infiltration in the right lower lung field. Given mapharsen 0.045 gm. and intravenous 10% glucose saline, 1,000 c.c.

December 9.—Auscultation reveals some diminution of breath sounds and faint distant râles at the right base posteriorly. Patient has developed herpes on dorsum of hands and on legs. Direct smears of sputum negative for Vincent's organisms. Wassermann negative.

December 10.—Patient toxic and seriously ill. Temperature 104° F., pulse 130, respiration 28. Pneumonia in right lower chest is gradually clearing. Bullous and herpetic lesions seem to be spreading discretely up the arms and legs and getting larger; four have appeared on the back. Mouth and nose seem worse, are swollen, painful and bleeding. Considerable mucopurulent discharge from the eyes. Smears of pus from eyes show no organisms. Given 1,000 c.c. 5% glucose in normal saline intravenously with 200 mgm. vitamin C. Blood culture taken. Blood taken for grouping. Hgb. 71%, white blood cells 15,700.

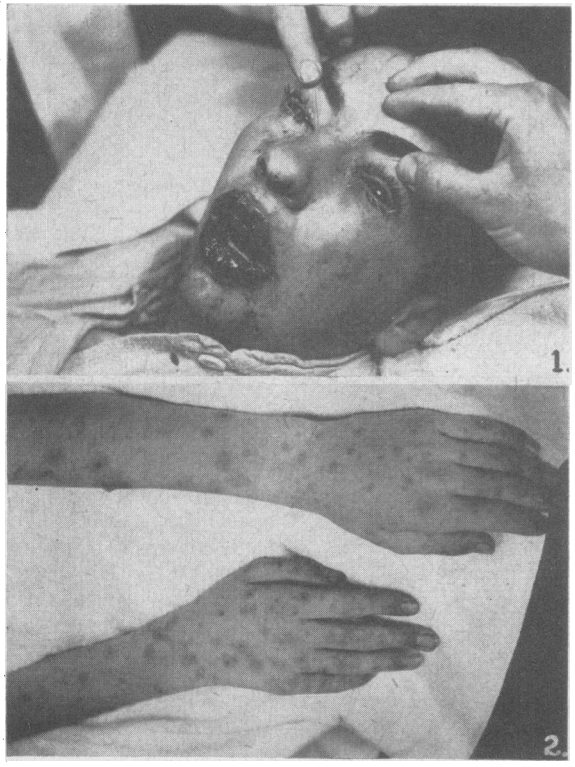

Fig. 1.—Showing lesions of the skin of the face and mucous membranes of eyes, nose, lips and mouth.
Fig. 2.—Lesions of the skin of the arms and hands.

December 11.—Patient's temperature is slightly lower today, and he is definitely less toxic. General condition is improved. Since December 8, he has been getting 2 intravenous infusions of 1,000 c.c. each daily; on the first day, 10% glucose in saline was used; since then, 5% glucose with 200 mgm. of vitamin C and 2 mgm. of vitamin K in each infusion. For prospective transfusion, patient was grouped yesterday (Group "O"—International). Six donors of blood Group "O" were cross-matched and agglutination occurred in each case. Today two more Group "O" donors were cross-matched and again agglutination occurred in each case.

On the next few days there was gradual but slight improvement although the mucous membranes were still greatly inflamed. A few drops of blood appeared *per urethram* suggesting erythematous lesions of the urinary tract.

Culture of pus from conjunctivæ showed: hæmolytic *Staph. aureus*. Sputum culture and smear: "No Vincent's organisms or hæmolytic streptococci present".

December 17.—Patient's general condition seems to be slowly improving, though his temperature remains in the neighbourhood of 102 to 103°. The skin lesions seem to be healing well, and no new ones are appearing. Urinalysis still reveals hæmaturia. Today he has râles over most of the right chest posteriorly and over the lower half of the left chest posteriorly, but he is not cyanosed or dyspnœic, has no chest pain, and is not coughing much. Hgb. 78%, white blood cells 13,400, urine: red blood cells +++. Chest x-ray: "Bronchopneumonic consolidation now involving entire right lung and left lower lobe".

December 20.—General condition showing slow but steady improvement. The left upper lobe is the only one at present not involved. All other areas show crackling râles (gradually becoming less evident), with some dullness to percussion posteriorly. There is a well marked lag on the right side. Gums are still swollen and tender, but show very little ulceration. Hgb. 81%, white blood cells 16,050.

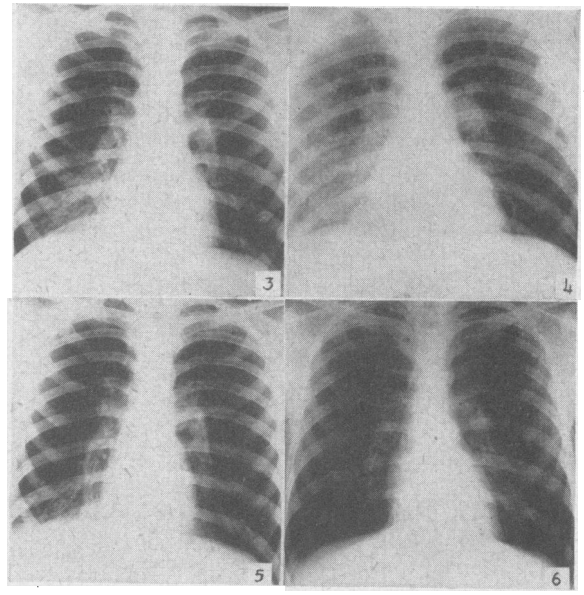

Fig. 3.—December 8, 1943—Early in the course of the disease. **Fig. 4.**—December 17, 1943—At the time of maximum chest findings. **Fig. 5.**—January 12, 1944—Chest clear to auscultation. Patient convalescent. Some residual findings on x-ray. **Fig. 6.**—January 11, 1945—One year later showing normal chest.

Progress was slow but steady. By December 31, the bleeding from the gums had almost completely disappeared and x-ray showed clearing of the lungs. He was discharged home on January 19, 1944, and four weeks later all skin lesions had entirely healed. The white cell count had remained high till late in his illness, the last count on January 4, 1944, being 22,550. Unfortunately differential count was done only at the beginning, so that there was nothing to show whether there was an eosinophilic response or not.

DISCUSSION

The etiology of this syndrome is obscure. Until Schoemperlen put forward his suggestion of an allergy or hypersensitivity and himself used benadryl with more than encouraging results therapy was confined to nursing care, supportive measures, multiple transfusions and vitamins. His use of and success with benadryl would support the sensitivity theory and it would be interesting to discover if similar responses could be obtained in cases that appear to be directly and solely due to sulfonamide reaction or sensitivity, with lesions of the skin and mucous membranes. It is hard to believe that the mucous membrane and skin lesions are connected with the respiratory disease unless as a sensitivity or toxic response to the pulmonary infection. In the mucosal respiratory syndrome it is possible that the respiratory disease noted is a mucous membrane sensitivity response of the tracheo-bronchial-alveolar system along with the skin and other mucous membranes to some common or general agent.

SUMMARY

1. A brief survey is presented of the literature on the subject.

2. Presentation is given of a case with recovery.

3. The etiology is discussed briefly.

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The rural area serves as a definite challenge to the well-qualified public health nurse in carrying on a nursing program which includes venereal disease control. The public health nurse who studies the characteristics, customs, and attitudes of the rural population will not only render satisfactory service but will find in such study stimulation of resourcefulness and ingenuity from which she will profit. With understanding and the desire to render service to individuals who have acquired a venereal disease she is making a real contribution to the health and welfare of the rural population. This she could not do without the assistance and support of the local practicing physician, the lay health committee, and the other interested groups.—*J. Ven. Dis. Inf.*, **28**: 60, 1947.

SPECIAL ARTICLE

REPORT ON A NATIONAL SCHEME FOR TREATMENT OF RHEUMATIC DISEASE IN BRITAIN

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The problem of the rheumatic diseases in Britain as in North America* is one of considerable magnitude. If one considers the crippling occasioned by this group of diseases (often in young people), the high incidence of these conditions in the lower income group where financial considerations prohibit long hospitalization and work absenteeism, and the loss to the national income, it becomes increasingly clear that the problem of the rheumatic diseases is one of national import.

During the past year I have had the opportunity of observing and studying the birth, in Britain, of a national scheme evolved for research and treatment of the rheumatic diseases, and have visited many of the centres involved. In view of the increased interest in Canada with regard to these conditions it is felt that it may be of interest to consider the development of the British scheme.

In historical retrospect the development of the "baths" in various parts of England by the Romans in the Anglo-Roman era portended the treatment of the rheumatic conditions for years to come. Indeed, until recent times the spas alone were recognized as the centres for the treatment of the crippled, the gouty, and the disabled. (At least three of the four medical spas have origins dating from Roman times.) Widespread interest by the medical profession as a whole has become apparent only in the past twenty years or so. Interest was stimulated by investigators who began to point out the great incidence, disability and loss of work occasioned by these diseases, and an extensive campaign was launched to attempt to correct the completely inadequate knowledge about, and treatment of these conditions.

As long ago as 1922 the Minister of Health reported that one-sixth of the disability of insured persons in England and Wales was due to these disorders. In 1939 Davidson and Duthie[2] estimated that 9.4% of the total work done by medical practitioners in Scotland was devoted to rheumatic sufferers. In 1941 the Empire Rheumatism Council[3] concluded that the annual loss of income in England and Wales was of the order of £25,000,000.

Development of the present scheme began in 1943 when the Minister of Health appointed a sub-committee of his medical advisory committee

* A survey of the incidence in the United States in 1936[1] showed these conditions were first in the chronic diseases in causing disability.