OZENA. 1. VACCINOTHERAPY. 2. RESULTS OF SEROLOGIC, ANTIGENIC AND FOOD ANALYACTIC TESTS.*

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In the course of our bacteriological work we found, as have other investigators, numerous cultures of the *Bacillus mucosus* of Friedlander. From personal conversation and from the literature, I have learned that the Friedlander bacillus has been used and is being sold on the market as a specific vaccine for ozena. In eleven cases out of sixteen we isolated the Friedlander organism. Not being successful with the methods employed, I thought it best to utilize the material at hand and, therefore, prepared a polyvalent vaccine consisting of eleven strains of the Friedlander organism. On two occasions we thought that the coccobacillus of Perez was isolated, but five agglutination tests with the patients' sera were found negative. We had no immune animal sera for the Perez organism, for we at no time isolated it. We, therefore, discontinued the search for the Perez, Hofer and Kofler organisms. The vaccine was prepared in the usual manner and administered subcutaneously; the initial dose for adults being 500,000,000 and which was rapidly increased. I found that there was no improvement unless a large dose was administered and a general reaction resulted. The results obtained with this vaccine were gratifying but not entirely satisfactory, for the improvement was only temporary, although worth the trouble. At first the crusting diminished and the odor lessened and in three patients the odor and crusting entirely disappeared. One patient showed distinct hypertrophy of the nasal mucosa with complete recovery. This Society had the pleasure of seeing some of these patients when my chief, Dr. Coates, presented some of them to the Society in 1916. There is a recurrence of the symptoms in about six or eight weeks after the vaccine is stopped. In our series, there were only two exceptions, one a girl, age 15, who had all the typical symptoms of ozena but who made a complete recovery, for her turbinates show distinct hypertrophy. The other patient, whom I saw five months after the vaccine was stopped, was symptomatically cured, for there was no crusting and no odor.

*Read before the Philadelphia Laryngological Society.

To briefly summarize our results with the vaccine, we treated sixteen patients, fourteen my own, at the Pennsylvania Hospital, and two at the Polyclinic Hospital, by Dr. Schatz. Nine patients responded to the treatment, one made a complete recovery, another is symptomatically cured, seven recurred and the remaining seven did not respond to treatment.

Dr. Horn of San Francisco furnished us with his vaccine and this was administered to two patients, eight doses each, without any improvement.

All patients that came under our observation went through the following routine:

1. Chest examination.
2. Blood examination for Wassermann and various serological tests.
3. Thorough study of the sinuses.
4. Dietitic and food anaphylactic tests of the proteid group.

In 1916 Dr. McKenzie of London claimed that ozena was a precursor of tuberculosis (regarding it as one of the group of para tuberculous diseases) basing his data upon the history of his patients who invariably showed that there was tuberculosis in the family. He also found an acid-fast organism which he claims is an attenuated form of tuberculosis. In only two smears have I found the acid-fast organism, but these were not completely acid resistant, for I was able to decolorize them with acid alcohol. I prepared a tuberculous antigen for complement fixation, controlling the sera of the patient with that of the blood of the tuberculous sera. I found that the ozena complement fixations were negative while the tuberculous sera were positive. We, therefore, cannot lay much stress upon the acid resisting organisms found because the crusts present in the nasal chambers are very good breeding places for the saprophytic organisms.

2. There were only two Wassermanns positive, and these belonged to the group of seven that did not respond to the vaccine.

3. All cases were transilluminated and all antra were punctured, but I noted that in ten patients I had difficulty in puncturing the antra. This led me to believe that probably this condition was due to some food dyscrasia resembling that of rickets, which is characterized by softening and absorption of bone and surrounding tissue with possible secondary eburnation. The following proteids were employed: Cow casein, egg, beef, mutton, pork, fish, oysters,

clams, crabs, wheat, oatmeal, rice, barley, tomato and strawberries. These proteids were kindly provided by Dr. Albert Strickler with whom I worked out various food anaphylactic tests in acute rhinitis, hypertrophic rhinitis, hay fever, asthma and ozena. In brief, the foods were prepared by extracting the protein by the use of a weak alkali, and after shaking and incubating the solution, it was filtered and absolute alcohol added, and the solution evaporated in a water bath. A saturated solution of this dry material was made in an alkalized sodium chloride solution and the nitrogen content was determined by the Kjeldahl method. The endermic method of injecting the proteins was employed and one-tenth of a c.c. was used as a standard dose. The following constituted a positive reaction: 1. The lesion must persist for more than twenty-four hours, 2. The presence of a distinct papule, 3. The persistence of erythema, 4. Tenderness and induration at the point of injection. All ozena cases were negative.

The following antigens were prepared: 1. Polyvalent strains of our own isolated Friedlander's organisms. 2. Polyvalent commercial strains of the Friedlander's organisms. 3. Macerated ozenatous crusts. 4. Normal turbinates. 5. Hypertrophied turbinates. 6. Atrophic turbinates. 7. Ozenatous turbinates. 8. Tuberculous antigen. These antigens were properly prepared and carefully titrated.

It was most discouraging that this work should all be negative, for when I started I felt that something should be done whereby we could determine definitely whether ozena is due to some infection or is secondary to some general diathesis. Our findings from a serological point of view were negative, but I purposely reported these negative results so as to prevent others from pursuing experiments along the same lines and probably receive suggestions whereby I could correct my mistakes.

I wish to take this opportunity to thank Dr. John A. Kolmer for his assistance and material aid; also my chief, Major George M. Coates, for his kind encouragement, and for referring all ozenatous patients to us for experimentation.

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