

## UNUSUAL PENICILLIN HYPERSENSITIVENESS

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THE widespread employment of penicillin in medicine has disclosed many side reactions of a disturbing, often serious nature. About 5 per cent of normal people react unfavorably to this comparatively new drug. At the meeting of the American Academy of Allergy in Boston, Feb. 26, 1953, a panel discussion was devoted to the hazards of penicillin therapy, and although cognizance was taken of ten fatal cases resulting from penicillin therapy reported in the literature and in the experience of the members, the exquisite sensitiveness that sometimes occurs and that was exhibited in the case here reported was not greatly emphasized.

### CASE REPORT

A 35-year-old white drug salesman was referred to us because of known penicillin hypersensitiveness. While in the Army in 1945 he had been wounded and treated with large doses of penicillin over a period of ten days for a bone infection. Subsequent to this he had received, almost annually, injections of penicillin for nasal stuffiness associated with infection of the nose and sinuses, and on several occasions penicillin aerosol. Two years ago (1951) following a penicillin injection he vomited immediately, but exhibited no other untoward effects. He thinks he had penicillin the year after that without any reaction. On Jan. 28, 1952, he took by mouth four Biosulfa tablets.\* Within a period of minutes he was in violent anaphylactic shock from which he was rescued by heroic measures including hospitalization. One month later while in the office of a doctor who was treating another patient with penicillin aerosol in a room about thirty feet away, he suddenly developed the initial symptoms of shock, and saved himself from more serious manifestation by leaving the premises immediately. After this, on two or three occasions, in a drugstore, he developed rhinorrhea and distressing tightness of the chest when the druggist was changing penicillin tablets from one bottle to another. On the last occasion he did not get relief until Adrenalin was administered. During and prior to the development of these reactions he had suffered chronically from a stuffy nose, rhinorrhea, and headaches which his physician had treated successfully on an allergic basis, regarding him after skin testing as sensitive to certain foods and inhalants.

When seen by us for the first time, Oct. 28, 1952, this patient appeared as a healthy young adult, six feet in height, and weighing 190 pounds. Temperature was 98° F.; pulse was 80; respiration 20; blood pressure 140/88. Eyes, ears, nose, and throat were normal. Skin was free from eruptions; the neck, the thorax, the heart, and the lungs were negative; the abdomen, back, and extremities were all normal. Laboratory studies revealed a red blood count of 5,620,000 and a hemoglobin level of 15 Gm.; the white blood count was 7,650 with 53 per cent neutrophils, 17 per cent eosinophils, and 30 per cent lymphocytes. The sedimentation rate was 3 mm. in one hour; nasal blowings showed no eosinophils; the serologic test for syphilis was negative and skin tests to a number of ingestants and inhalants, except for several mild reactions, were negative.

The patient was asked to wait in an examining room. The door was closed. In another room some distance away penicillin G was given by aerosol to another patient. In a few minutes, without knowing what was going on in the other part of the building, the patient reported in this article developed severe paroxysmal dyspnea with coughing, wheezing, and rhinorrhea which did not respond to adrenalin until intravenous aminophylline was given.

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\*A proprietary combination of crystallin penicillin G, sulfadiazine, sulfamerazine, and sulfamethazine manufactured by The Upjohn Company.

The next day in order to determine whether this patient was sensitive also to penicillin O, serial dilutions were made of penicillin O for patch testing. The patches consisted of white blotting paper 1 cm. square prepared in the usual way. Three were employed saturated with 10 units, 100 units, and 1000 units of penicillin O, respectively. All three reacted promptly producing itching and wheals. The largest wheal with pseudopods measured 4 by 5 cm. The development of sneezing, cough, and a sense of constriction in the chest caused the removal of the patches and the washing of the areas with soap and water within twenty minutes of the time of the application of the patches.

Hyposensitization was regarded as inadvisable, and the patient was dismissed with the advice that he discontinue the detailing of all preparations containing penicillin, that he carry with him always an ampule of adrenalin and a sterile syringe, and that he have prepared a metal tag bearing the inscription that the wearer is hypersensitive to penicillin and that it should be given him under no circumstances. This tag he was advised to wear on all occasions.

#### SUMMARY AND CONCLUSIONS

Several features of this case invite comment:

1. There is great value in a history carefully taken concerning the previous use of penicillin and the patient's experience after its employment.
2. Danger lurks not only in the administration of penicillin therapeutically but in the actual testing for the hypersensitiveness that is suspected.
3. Extreme sensitiveness may at times exist in patients allergic to penicillin producing a situation in which skin testing by the scratch or intracutaneous method might well prove fatal.
4. Patch testing with graduated dilutions of penicillin may serve as an immediate warning of danger in the oral or parenteral use of the drug. It is safer than either the scratch or intracutaneous method, and in suspected cases should be substituted for, or precede, the other conventional tests.
5. This individual was sensitive both to penicillin G and to penicillin O so that one could not be substituted for the other.
6. An individual exhibiting this degree of sensitiveness should wear continuously an indestructible tag about the neck or on a wrist chain as a warning in case of accident attended by unconsciousness against the risk of having administered to him this otherwise useful antibiotic.