AN UNUSUAL STRAIN OF STREPTOCOCCUS ISOLATED FROM SUBACUTE BACTERIAL ENDOCARDITIS

HELEN AUERBACH AND OSCAR FELSENFELD

Hektoen Institute for Medical Research and Department of Bacteriology, Cook County Hospital, Chicago, Illinois

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Streptococci isolated from man and animals are usually nonmotile. Only sixteen strains of motile streptococci have been reported (Koblmüller, 1935; Pownall, 1935). All of these strains belonged to the enterococcus group. Enterococci are frequently isolated from the blood stream. The occurrence of motile strains, from man or animals, has not as yet been reported in America.

The taxonomy of enterococci was greatly clarified by Sherman (1938), Kuehner (1946), and in the recent edition of Bergey’s Manual (Breed et al., 1948). The cardinal points in the differentiation of enterococci from other streptococci are hemolytic ability and tolerance for the following: heat (60° C for 30 minutes), methylene blue (0.1 per cent solution), sodium chloride (6.5 per cent), bile, and alkaline medium (9.6 pH). In addition, the action upon milk, esculin, sodium hippurate, starch, and a number of other carbohydrates (chiefly lactose, inulin, raffinose, mannitol, sorbitol, and trehalose) aids in the classification of these organisms.

The motile streptococcus studied by us was isolated from the blood stream of an adult woman suffering from subacute bacterial endocarditis.

The cultures of the organism consisted of ovoid cells, 0.75 to 1.0 μ in diameter, occurring in pairs and short chains. It was gram-positive and encapsulated, motile with one flagellum at room and incubator (37° C) temperature. The flagellum was difficult to stain. After futile experiments to make it visible by Leifson’s method, nigrosin permitted us to see it. The difficulties encountered in the staining of flagella of motile streptococci were described by Pownall (1935).

The organism grew well at room temperature and at 37° C. Gelatin was not liquefied. On nutrient agar small, round, raised colonies were formed. The growth in broth was diffuse, later forming a heavy sediment. Transitory acidity in litmus milk, without reduction, and alpha type hemolysis on blood agar plates were observed. Acid but no gas was produced from glucose, sucrose, maltose, mannitol, salicin, xylose, trehalose, and arabinose in 1 day; from lactose in 3 days; from glycerol in 7 days. Raffinose, sorbitol, inulin, rhamnose, and dulcitol were not attacked in 3 weeks. No dextran was formed. Esculin was split. Starch and sodium hippurate were hydrolyzed. Ammonia was formed from peptone. The organism survived heating to 60° C for 20 but not 30 minutes. It grew on agar at pH 9.6; in the presence of 50 per cent bile; in the presence of 0.1 per cent methylene blue; and on 6.5 per cent sodium chloride agar. The fibrinolysin test was negative. It was sensitive to 0.6 units of penicillin and to 25 μg of streptomycin.

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This microbe differed from the *Streptococcus pyogenes* group by the fermentation of mannitol, the tolerance of methylene blue, and hemolytic properties. It was distinguished from the viridans group of streptococci by its tolerance of methylene blue, alkalinity, and salt and also by the production of ammonia. It could not be placed as a typical member of the "lactic" or the "enterococcus" group because of its lack of action on milk.

Thus this streptococcus cannot be classified as a typical member of any of the commonly recognized groups. It may, however, be a variant of *Streptococcus faecalis*, which belongs to the enterococcus group. It differs from this organism only by its failure to attack milk and by its ability to hydrolyze starch.

**SUMMARY**

An unusual motile streptococcus isolated from the blood stream of a patient suffering from subacute bacterial endocarditis is described.

**REFERENCES**


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